DL-3620
Service Manual

Dec, 2011

上海多丽影像设备有限公司
SHANGHAI DOLI PHOTOGRAPHIC EQUIPMENT CO.,LTD.

DL-3620 SERVICE MANUAL

Copyright©2011 Shanghai DOLI photographic equipment co., Ltd
All right reserved

The contents of this manual are subject to change without notice.

DOLI and 多俐 are registered trademarks of Shanghai Doli photographic equipment co., Ltd. in China and/or other countries.

Pakon is registered trademarks of Pakon Inc.

If the pictures and figures are different from the machine, there may have been modifications; customers should refer to their own machine.

Please check back with our training and service department for the latest information of the machine, since any modification after the printing will not be reflected in this manual.

Index

Index **1**

Chapter 1 Caution for work **1**

1.1 Countermeasure for static electricity when replacing and maintaining the electrical parts 2

1.2 Handling chemicals 2

1.3 Storage 3

Chapter 2 Maintenance **5**

Prologue 5

2.1 Morning setup 7

2.2 Exposure centre (ABCD) calibration 8

2.3 Temperature calibration 10

2.4 Grid calibration 12

2.5 Uniformity calibration 14

2.6 Replenishing system setup 22

2.7 Colour management-from monitor to photos 26

Chapter 3 Service **34**

Prologue 34

3.1 DL-202Ps Densitometer 34

3.1.1 Installation 34

3.1.2 Show densitometer test value 43

3.1.3 Calibration 44

3.1.4 Open help file 46

3.2 Data backup and restore 47

3.3 Linux system backup and recovery 50

3.4 Client PC setup 57

Chapter 4 Printed Circuit Board and Description **62**

4.1 ACControl-I002 PCB 62

4.1.1 Disposition and Descrption 63

4.2 WashControl-D107 PCB 66

4.2.1 Functions 67

4.2.2 Adjustment for replacement.....67
4.2.3 Desposition and Desposition.....69
4.3 CtrlBoard-S102 board..... 74
4.3.1 Functions.....75
4.3.2 Disposition and description.....75
4.4 BprintCPLD-S102..... 82
4.4.1 Disposition and description.....83
4.5 STEPPOWER-S101..... 85
4.5.1 Disposition and description.....86
4.6 Step Motor Driver_104 87
4.6.1 Disposition and description.....88
4.7 PowerCtrl-I001 PCB 89
4.7.1 Desposition and Description.....90
4.8 MASTER-D103B PCB 91
4.1 Desposition and Description.....92
4.9 LEDDRIVER-Z101 PCB 94
4.9.1 Desposition and Description.....95
Chapter 5 Wiring Diagrams 99
5.1 AC power supply wiring diagram(As Fig.2-1)..... 99
5.2 AC power supply wiring diagram (Fig.2-2)..... 100
5.3 AC power supply wiring diagram (Fig.2-3)..... 101
5.4 AC power supply wiring diagram (Fig.2-4)..... 102
5.5 AC power supply wiring diagram (Fig.2-5)..... 103
5.6 Power PCB and surrounding(Fig.3-1)..... 104
5.7 Washctrl PCB and surrounding(Fig.4-1) 105
5.8 Platform PCB and surrounding(Fig.5-1)..... 106
5.9 Platform PCB and surrounding(Fig.5-2)..... 107
5.10 Platform PCB and surrounding(Fig.5-3)..... 108
5.11 Master PCB and surroundings (Fig.6-1)..... 109
5.12 DVI drive and surroundings(Fig.2-1).....110
5.13 LEDLamp and surroundings (Fig.2-2).....111
5.14 Platform PCB and surrounding(Fig.6-1).....112
5.15 Platform PCB and surrounding(Fig.6-2).....113

Index

5.16 Wiring of the machine(Fig.9-1) 114
5.17 Wiring of the machine(Fig.10-1) 115
Chapter 6 Sensors 117
Illustration for sensors 117
6.1 Type of sensor....118
6.2 Sensor Function 119
Chapter 7 Illustration for adjustable components 121
7.1 CPLD-S102 trimmer function for Backprint....121
7.2 WashCtrl-D107 trimmer function....121
7.3 Master-D103B trimmer function....122
Chapter 8 Dip Switch Function....123
8.1 CtrlBoard-S102 PCB Dip switch description 123
8.2 WashCtrl-D107 PCB dip switch description 123
8.3 StepMotorDrive_104 PCB dip switch description....123
Chapter 9 The LAB software....125
Chapter 10 Trouble Shooting and Solution 133
10.1 Hardware Symptom....133
Chapter11 Mechanical parts adjustment 135
11.1 Assembly and Disassembly of collecting plate....135
11.2 Assembly and disassembly of raiser rack 136
11.3 Rack disassembly....137
11.4 Cleaning and Replacement of replenish pump unilaterial pump....138
11.5 Filter cleaning and replacement....140
11.6 Replace the rubber sleeve on the rack bottom....142
11.7 Rack check-up and cleaning....143
11.8 Check and clean chemical tank and pipe network 144
11.9 How to replace ribbon cartridge 145
Chapter 12 Mechanical Malfunction Removal 149
12.1 Raiser rack malfunction and solution....149
12.2 Rack malfunction and resolvent....149

12.3 Paper scratch and Solution..... 150
12.4 Waste pump malfunction and Resolvent..... 150
12.5 Paper overlapping and resolvent..... 151
12.6 Photo comes out not dry..... 151
12.7 Back print dim..... 152
12.8 Processing solution doesn’t warm up and solution..... 152
12.9 No replenish flux and Solution..... 153

Chapter 1 Caution for work

For safe operation

- **General precautions**

  Prior to any part replacement or mechanical adjustment, be sure the air brake is switched off.

  - Ground wires (green and yellow) are connected to the covers and units of the machine. For reassembly, be sure to connect the ground wires as they were.
  - Be sure to perform an operation check after replacing or adjusting any parts (or units).

- **Precaution against electric shock**

  - If any case you have to take care of wiring for the power such as moving the machine, ask a qualified professional electrician to do so. Do not forget to ground the machine.
  - Pay attention to avoid shocks when performing troubleshooting, wiring checking, or voltage/current measurement.
  - When replacing a fuse or PCB, be sure to switch off the air brake.

- **Precaution for operating rotary section**

  - Be careful with your hands, hair, clothes, etc., not to be caught under the gear, chain, belt, roller, fan and other rotating parts.
  - Do not remove the cover unless it is specified.
  - If your hand or the like is caught and you can not move, ask someone around you to turn off the air brake at once.

1.1 Countermeasure for static electricity when replacing and maintaining the electrical parts

If an electronically charged human body touches electronic parts like PCBs, it may adversely affect the electronic parts.

When handling the electronic parts, be sure to use static-dissipative conductive gloves to prevent the components on the PCB from being damaged due to static electricity.

The static-dissipative conductive gloves are included in the spare parts of your machine.

When using the static-dissipative conductive gloves, be sure to turn off the air brake and wait 15 seconds to carry out operation.

1.2 Handling chemicals

The work with the machine involves the handling of slightly poisonous, irritating and etching substances, to apart from these, the user must ensure sufficient aeration. The air in industrial workrooms should be exchanged at least 8 to 10 times per hour.

All photographic developers contain substances which may irritate the skin, the mucous membrane and the eyes and which may cause allergic skin reactions affecting very sensitive persons. For this reason, avoid long or repeated skin contact, especially with developer solutions.

For all jobs where photographic processing solutions may splash, e.g. preparing and filling in chemical solutions, cleaning processing racks etc.:

- Wear protective gloves; rinse all solutions that get on the skin with plenty of running water.
- Wear industrial glasses.
- Wash with soap and rinse with lots of water after completion of work.

Storing chemicals and processing solutions in a safe place.

If a processing solution has been ingested accidentally, immediately rinse mouth with water, and drink 2 or more cups of water and induce vomiting. Contact a physician as soon as possible, and

follow physician's instructions.

If processing solution gets into eyes, immediately rinse them under running water for at least 15 minutes, and then contact a physician.

Processing solution stains on your clothing may result in discolouration or fading, when handling processing solutions, wear clothing for work wear.

Photochemical are not allowed to be drained off into the public sewage system! Please obtain the information about the regulations in force about the handling and correct disposal of chemistry from the country's authorities in charge.

1.3 Storage

The chemicals should be stored and prepared according to the manufacture's information and advice.

All Colour papers must always be stored in a cool and dry place.

The best storage temperature is between 2℃ and 10℃.

Opened packages have to be stored at a relative humidity of 20-60%.

Storage at 20℃ over several days is possible without problems.

Storage temperatures above 30℃ should be avoided because they will cause visible alterations after only a few days.

Chapter 2 Maintenance

This chapter contains items concerning maintenance necessary to make high quality prints.

Prologue

For a steady-going machine and making high quality prints, maintenance is very important.

Maintenance needs to be performed regularly. Otherwise unexpected problems could arise and the lifespan of the machine could be shortened.

- **Daily maintenance**
  - Start-up the machine in a sequence.
  - Spray some fresh water on the upper rollers of the processing racks and the cross-overs.
  - Morning test for all the paper magazines
- **Weekly maintenance:**
  - ABCD calibration if necessary.
  - Change the STB water.
  - Clean the filters of the working tanks.
  - Clean the cross-overs.
- **Quarterly maintenance:**
  - Uniformity calibration if necessary
  - Grid calibration if necessary
  - Clean the tanks if necessary.
  - Check the replenishing pumps, circulation pumps and the pipes to avoid potential chemical leakage.

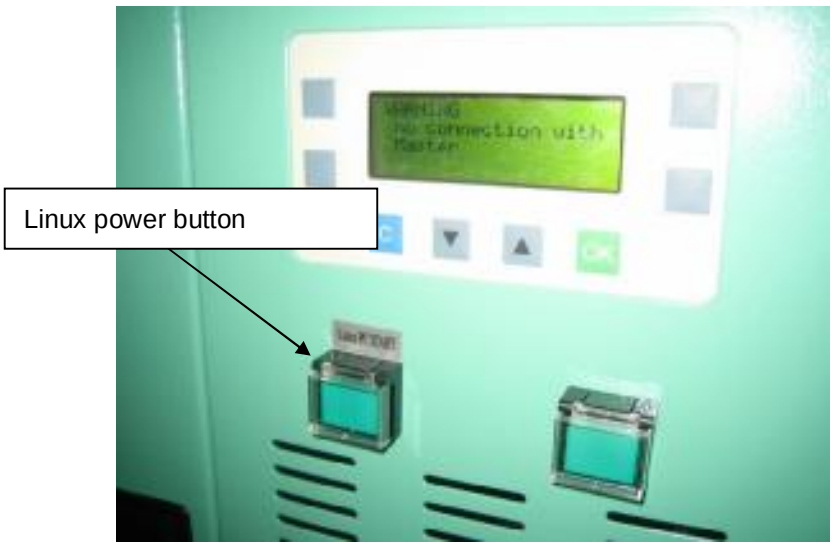
Machine start-up sequence:

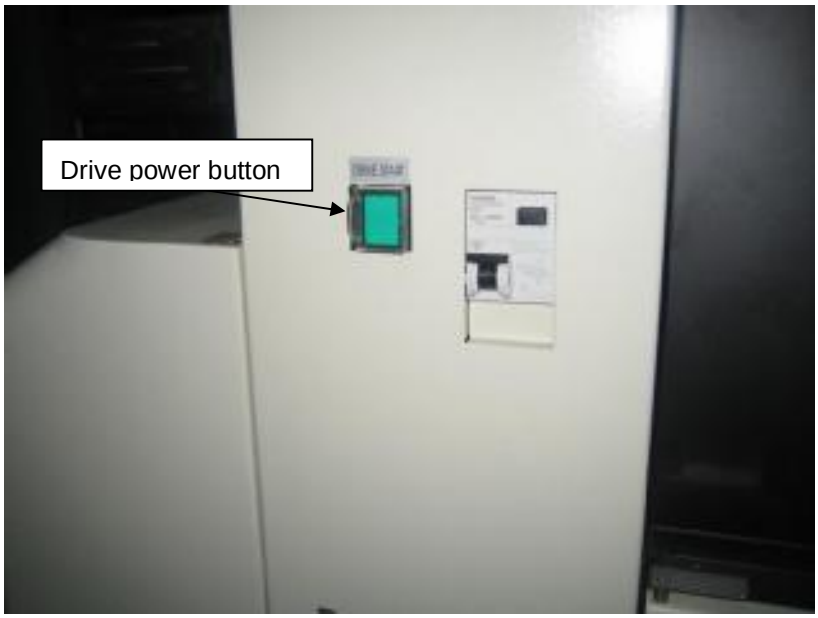
1. Turn on the Windows PC

2. Turn on the Drive power

3. Turn on the Linux PC.

Improper start-up of the machine could cause unexpected problems of the photos.





Chapter 2 Maintenance

2.1 Morning setup

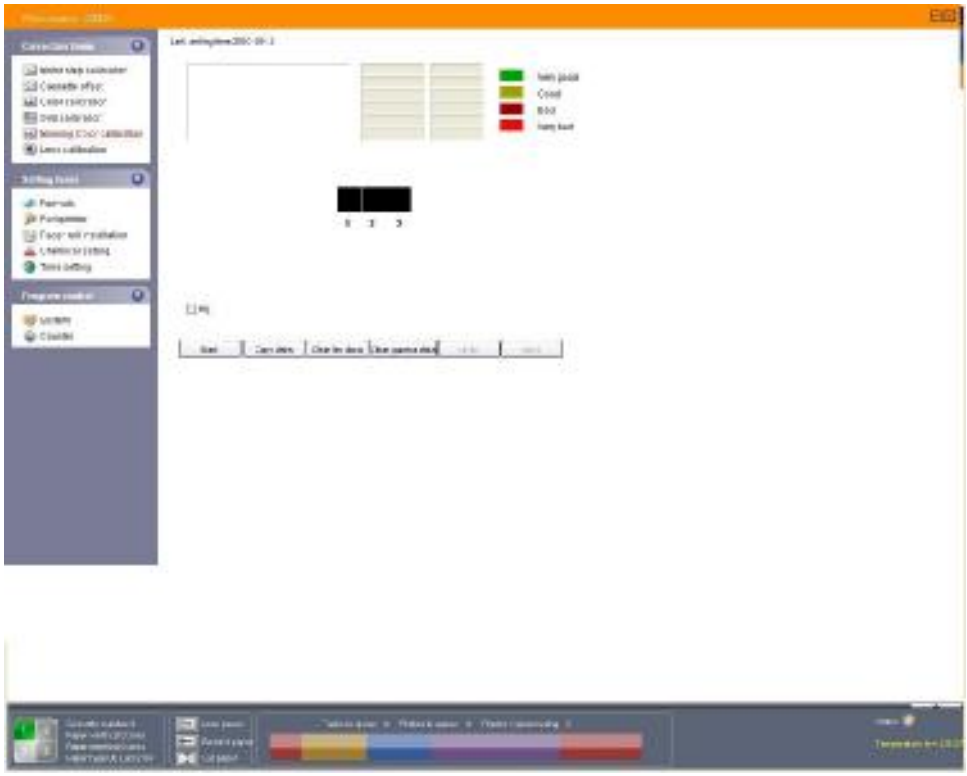
Purpose: To compensate the colour deviation caused by changes of chemicals, etc., keep colour output stabilized.

Precondition: Processing solution temperature has reached the set value.

There are two different morning setups, for normal format we simply take method A---4 times morning setup, for HQ format we take method B----16 times morning setup. (In factory, the default HQ format is over 8 inches).

Steps:

- Run **PhotoSmart**.
- Complete the **Morning Color calibration**.

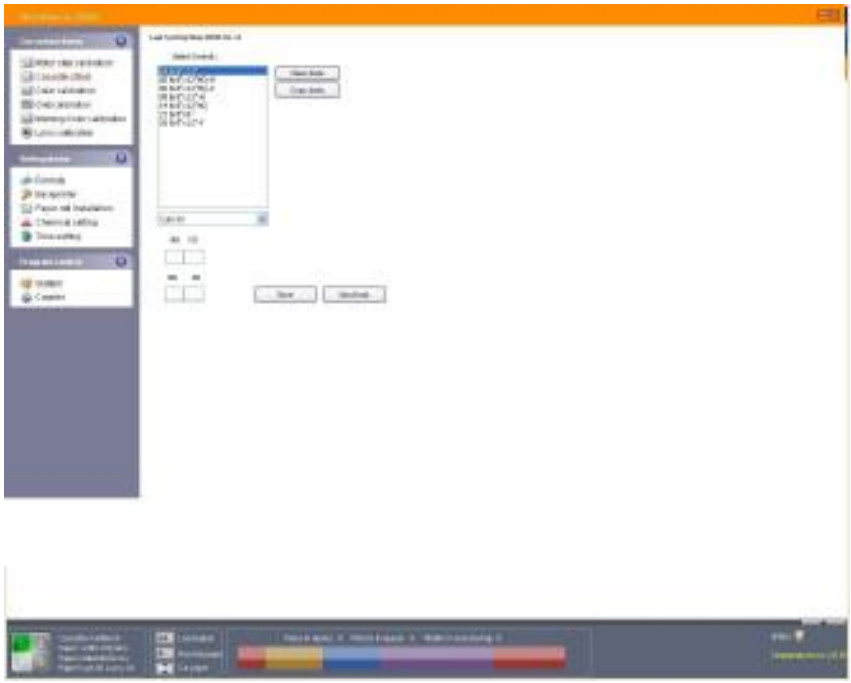


2.2 Exposure centre (ABCD) calibration

Purpose: To calibrate the image exposure centre of the photo. In the case white border appears on the photo, this calibration shall be performed for the corresponding formats of the photos.

Steps:

- Open **Maintenance**.
- Select **cassette offset**.
- Select formats and then click **Send Test**, then computer will send test prints for the formats you selected.
- After the test prints coming out, key in the **A0**, **B0**, **C0**, **D0** value of the test prints to the corresponding format's dialog box.



- Click **Save**, click **Send Test** again, repeat the above step, until the deviation of **A** and **C**, **B** and **D** value is within 2.

This calibration shall be done for each format and each cassette.

For example, if you have 2 cassettes with 152mm paper loaded which are cassette 01 and cassette 02, you will need to do this calibration for the 152x102mm and 152x203mm formats etc for both cassettes.

2.3 Temperature calibration

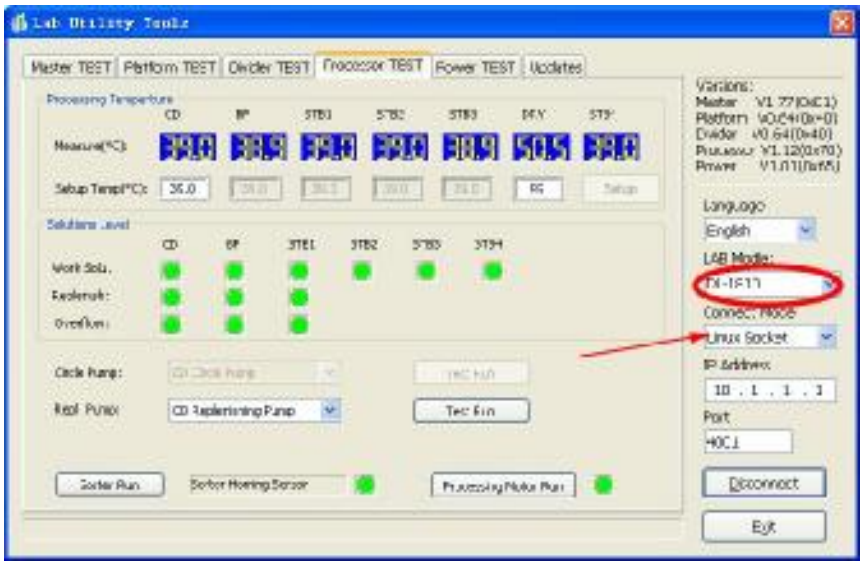
Purpose: To set up the temperature for each working tank according to the requirement of the processing solution, and calibrate the actual temperature of each working tank to be the same as its monitor display.

Precondition: The temperature of the processing solution has reached the set value.

Tools required: Thermometer with 0.1℃ definition.

Steps:

- Turn on the machine.
- In DL-3620 machine Windows PC, go E: \ 3620 \3620, click



- Measure the temperature of each tank by thermometer, and then adjust the appropriate trimmers on the Washcontrol PCB to get the display temperature matching the actual temperature which is read out of the thermometer.

  Trimmer definitions of the Washcontrol PCB are as below:

Trimmer	Definition
VR2	CD
VR3	BF
VR4	STB1
VR5	STB2
VR6	STB3
VR7	Dryer
VR8	Room Temp.
VR8A	STB4

- Select DL-3620 in LAB Model and Linux socket.
- Take precaution when measuring to avoid chemical inter-contamination, when reading the thermometer, leave the thermometer in the tank.

2.4 Grid calibration

Purpose: To remove the strong grid lines of the photos which are printed by 3 times exposure mode, in the case the grid lines appear on these photos after several months, this calibration shall be performed.

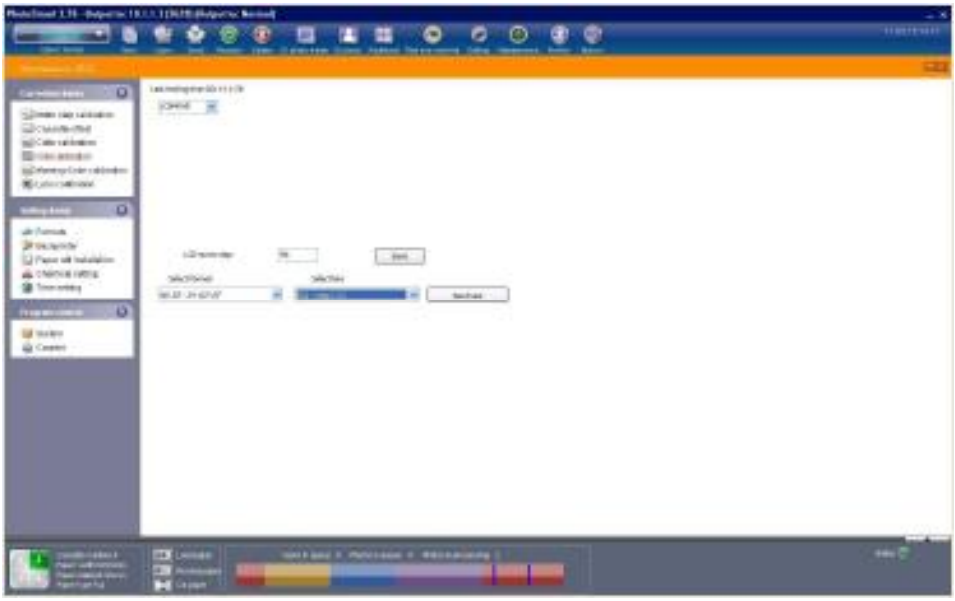
Tools required:

- Magnifier (at least 8X)
- 610mm glossy paper

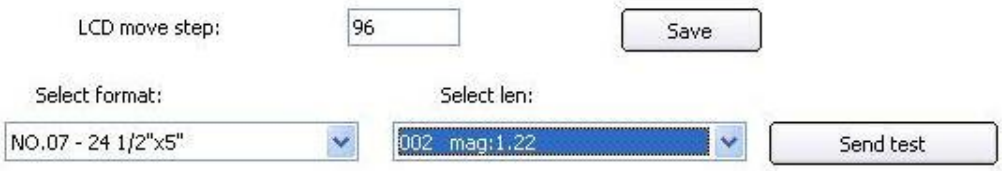
Steps:

- On the DL-3620 machine Windows PC run **PhotoSmart**.

1. Run **Maintenance** and choose **Grid Calibration**.



2. Select printing format 24 1/2” X5” in Select format of test print and lens in Select lens (lens 002) to expose.
3. Click **Send test** to print a test print,
4. Observe the printed test photo and change the value in LCD Move Steps accordingly.
5. Click **Save** and repeat the above procedures until satisfied.


LCD move step:
96
Save
Select format:
Select len:
NO.07 - 24 1/2"x5"
002 mag:1.22
Send test

2.5 Uniformity calibration

Purpose: To calibrate the uniformity of colour or density to be the same at each district of the photo; to remove the slight vertical lines on the photo.

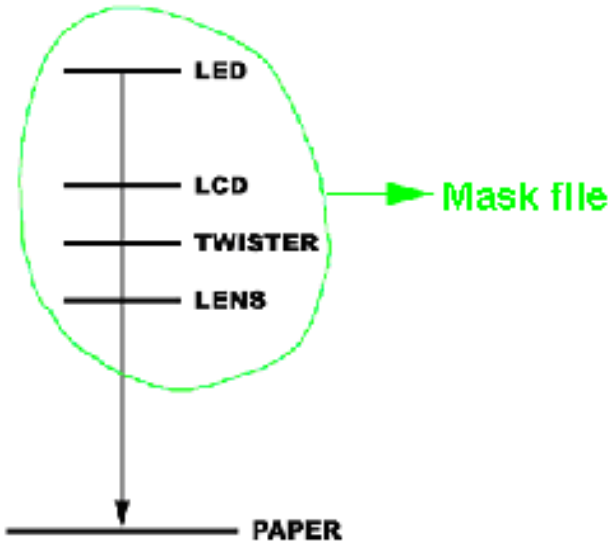
If you print a photo from a neutral grey test film or a neutral grey test file, and the result is uniform neutral grey at each district of the photo, then the density and uniformity of the photo shall be good.

Usually there is a diffuser (mirror box) in film minilab, of which the function is to convert the diffusive light emitted from halogen lamp to coherent light (parallel light), so as to get a uniform neutral grey photo.

There is no diffuser in DL-3620. However the density uniformity result of the photo which is printed from a neutral grey test file is perfect. This attributes to that DL-3620 adopts software control the transmissivity of each LCD liquid crystal particle that is on LCD to simulation the effect of a diffuser.

Mask file records the transmissivity correction of the LCD liquid crystal particles, of which the file extension name is prn.

So the Mask file is a virtual diffuser.



Mask file is a total compensating result of exposure unit. There 4 lens in DL3620, so that there are 3 Mask files needed for printing.

The Mask file shall be re-calibrated when the following event occurs:

- Replace LED
- Replace LCD
- Replace lens
- Slight vertical lines appear on the photos

Tools required:

- A3 flatbed scanner which is with 24 bit colour and 500dpi scanning capability
- **Photoshop** software
- glossy paper
- Format recommended: 610(623) x 660 (lens000), 457 x 508 (lens 001), other formats bigger are also applicable.. (Resolution in scanning 500DPI)

Preconditions:

- The scanner has been cleaned so that there is no dust or finger mark on it.
- The **Maintenance** > **Color Calibrations** has been completed for the glossy paper.
- The scanner has been calibrated if necessary.
- The registry file and tabkor files are backup to windows PC already

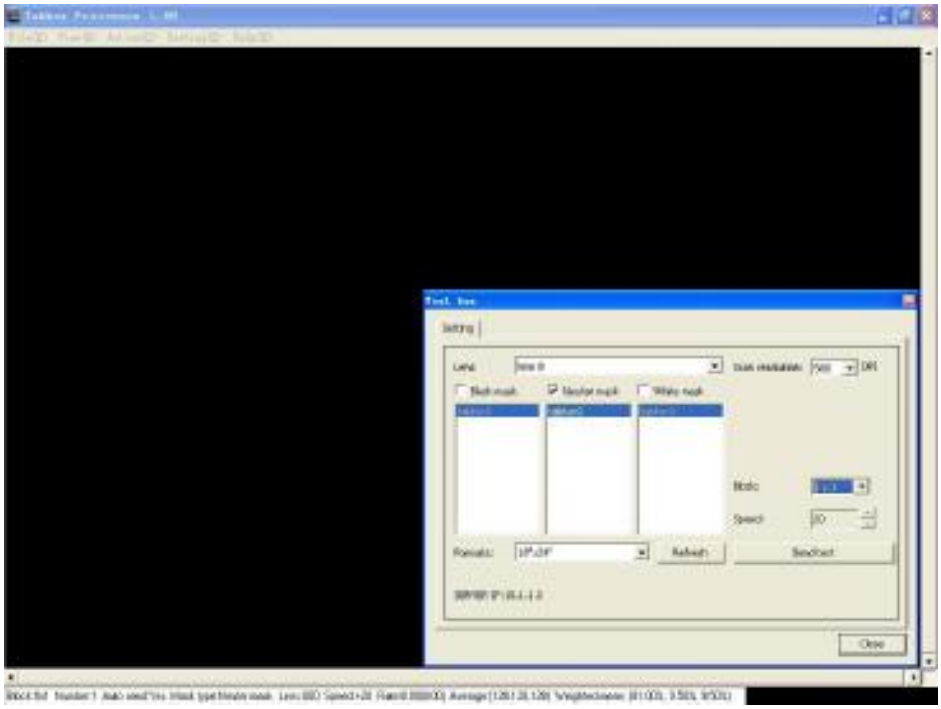
The scanner calibration shall be performed only if the deviation of the colour or density between the scan image and the scan object are big.

If scanner is good, you can skip this step by just selecting a scanner profile from the list.

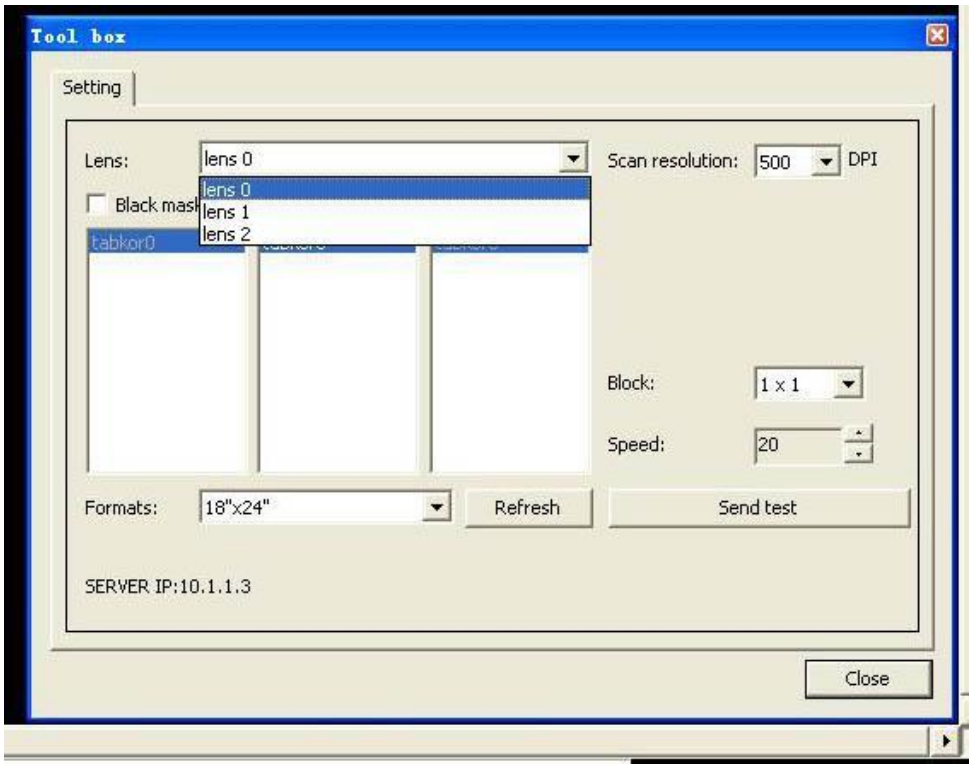
Steps of scanner calibration:

1. Finish the color calibration and create the right format for uniformity calibration first.(Format recommended: 610(623) x 660 (lens000), 457 x 508 (lens 001), other formats bigger are also applicable. (Resolution in scanning: 500DPI.) Use the Photoshop software to remove all the dust and dots (not the signal points).
2. Open the Tabkor Processor software(E:\DL-3620\Scanner)

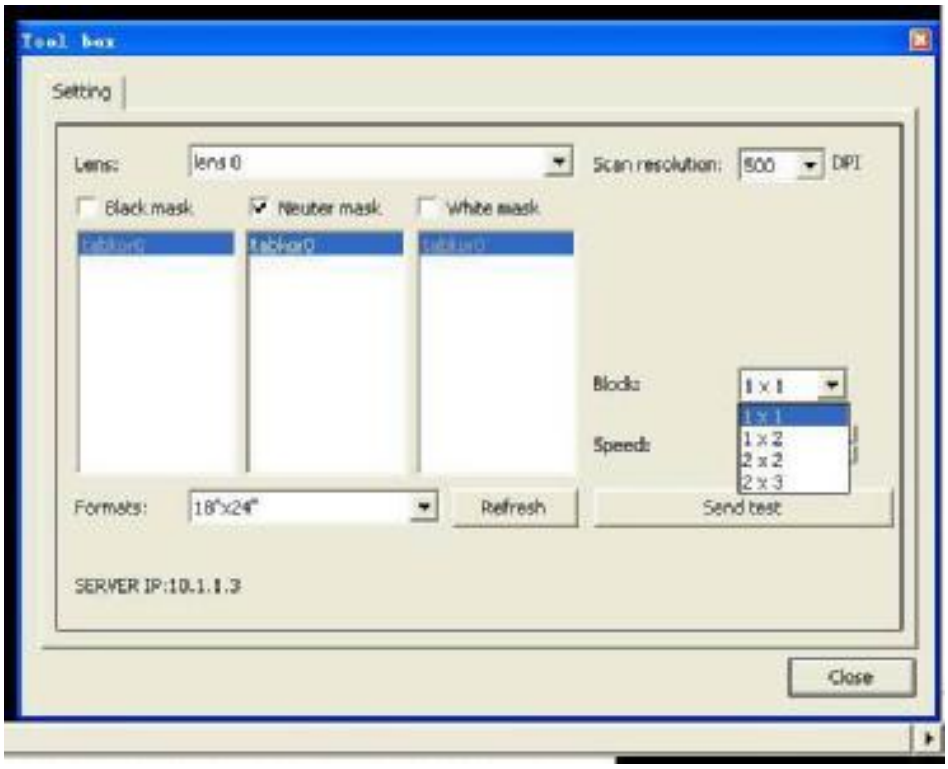
3. The main interface of the software as blew:



4. First choose the 'Lens 001'



Choose 'neuter mask' and choose 'tabkor0'.

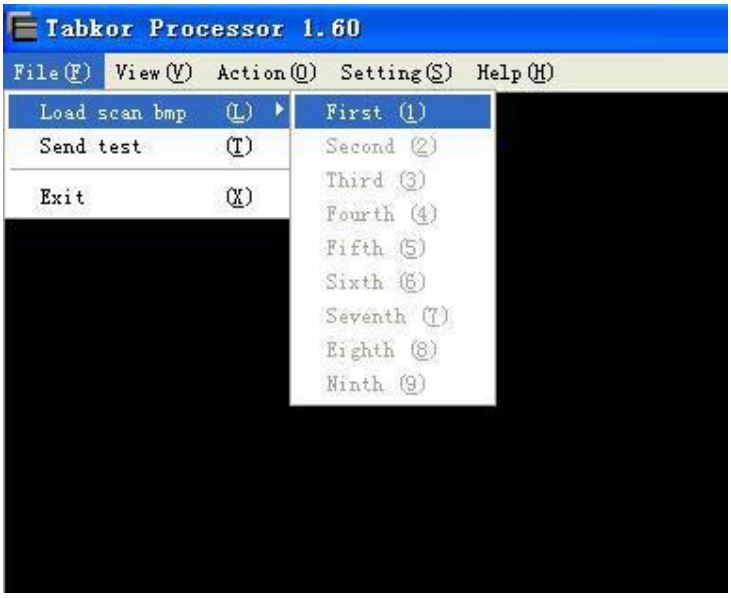


Scanner resolution: 500DPI and '2x2'(or 1x2) in Block(depend on your scanner, A4 scanner use

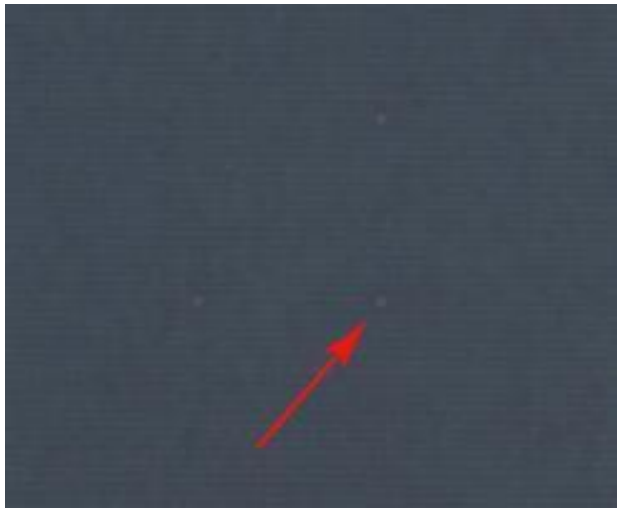
2x2, A3 scanner use 1x2, recommend A3 scanner!), then click 'send test' to send the unoformity test photo.

5. Scan this photo (resolution: 500DPI) and save as *.bmp, then use the photoshop software to remove the dust on the photo.(if you use the A4 scanner, you need scan the photo to four parts.)

6. In the Tabkor processor software, choose 'File'—'Load scan bmp'—'First'

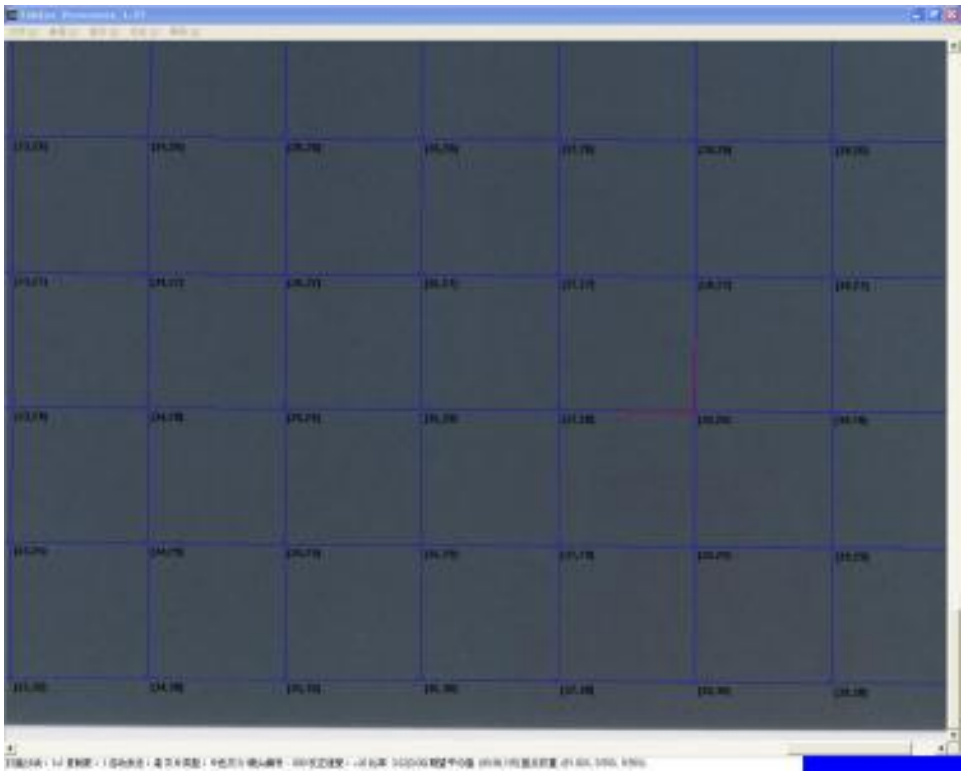


Find 4 group of the red sign point on the corner of the uniformity photo, hold press '**Ctrl'**, and right click the red sign point as the picture below:

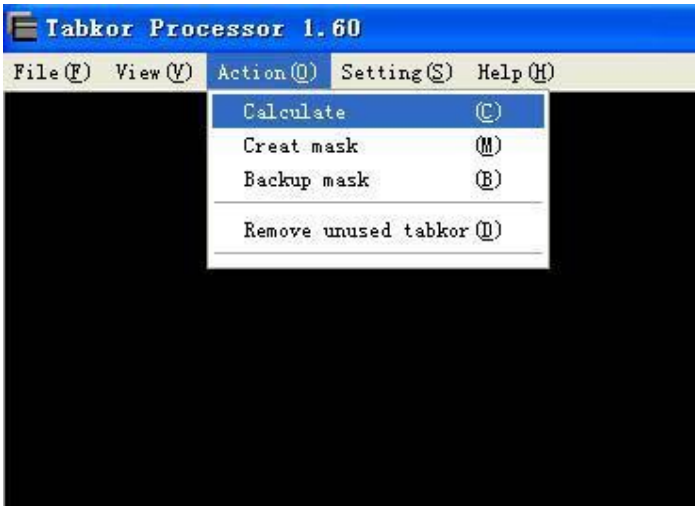


Then it will show the rectangular line as the picture below:

When you finish the fourth corner of red sign point, it will automaticlly show the mark points on the picture:



7. In the Tabkor processor software, 'File'—'Action'—'Calculate' to calculate the date:

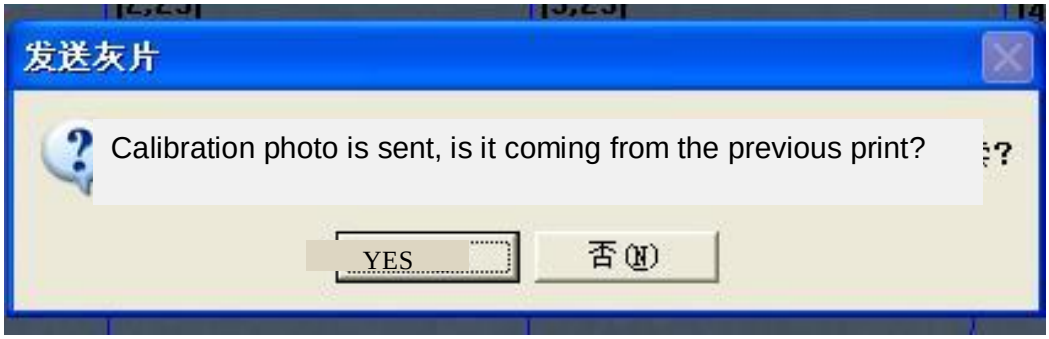


You can see the progressing in the lower right corner.

8. Then you need load second part and repeat step 6~7 (If you use A4 scanner, you need load and process the shird part and the forth part also).

Then go to 'File'—'Action'—'Creat mask', you will see a dialog box as below:

Click 'send test' to send the unoformity test photo again.



Click 'yes' to send the calibration photo, then repeat the steps above until you see the color of the uniformity calibration photo is equal.

9. When Lens 001's uniformity finish, choose 'lens 000' to continue the calibration.

10. Choose the last tabkor file for Lens 001 and click send test, repeat step 4—step 8 to finfish the calibration.
11. Regarding to the Lens 002(24x36), you may need A2 scanner otherwise you can use the Lens 000's tabkor file for lens 002.

If red border appears on the photo after scanning, check **Clone stamp** operation in **Photoshop**, you may have to restart the calibration procedure from an early .prn file which doesn't bring red border to the photos.

To restore an early .prn file to Linux PC before restarting the procedure:

- Copy and paste the file into Linux PC **\\10.1.1.1\tables** folder from Windows PC (assume that you have backup the early file to Windows PC).
- Open Linux registry, specify **etc/lens/001/tabkor**, change the file name according to the file you just copied, then click **Save now**.
- Specify **etc/lens/000/tabkor**, change the file name according to the file you just copied, and then click **Save now**.
- The same is true for lens 001, at last copy lens 000 to 002. (000 → 001 → 002)

In factory, Uniformity Mask is calibrated by a special method-attach a special Lens below the lens of DL-3620 to reduce the exposure image on the paper, this is the best way by which you don't have to extend the border of the scan image by **Photoshop**, but focus adjustment is needed during the factory procedure by a CCD camera. It is not possible and not necessary for user to use the factory method, but in case of red border appear s and not possible to be avoided, factory procedure shall be performed in stead of **Photoshop** method.

Please ask dealer for further information.

2.6 Replenishing system setup

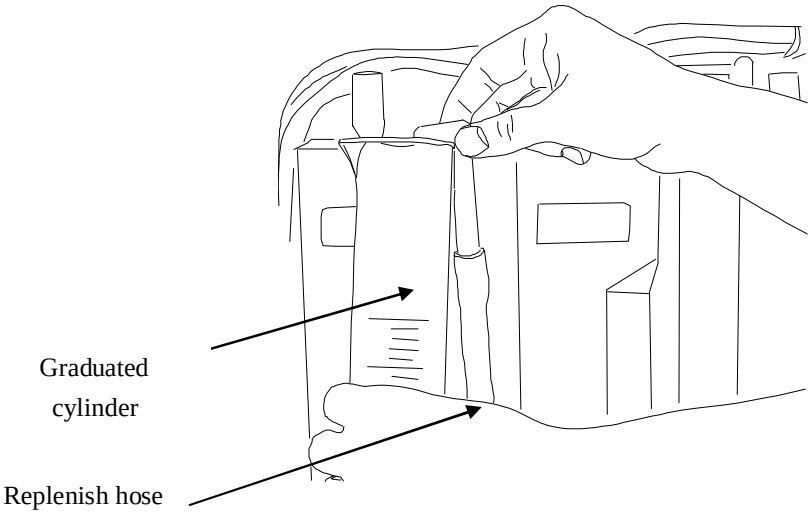
Purpose: Setup the replenishing system to meet the requirement of the chemistry instruction.

Tools required: Measuring cup/cylinder

Steps:

1. Measure the flux of the CD replenishing pump.

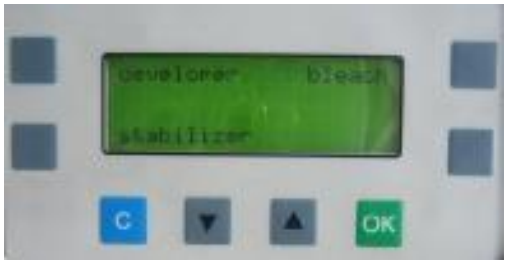
   - Remove the left side cover of the machine, and then put the replenishing pipe outlet to the Graduated cylinder or measuring cup.



   - On Linux LCD panel, press any button of the top 4 buttons to enter following interface:

   - Press the button on the left to **Pumps** to enter the following interface:

- Press the button on the right to **regenerations** to enter the following interface:



- Press the button on the left to **developer** to run CD replenishing pump 30 seconds.

  - The replenishing pump runs 30 seconds and then stops automatically for each time test.
  - For the first time measurement, if there is a little air inside the pipe, throw away the chemistry and then test again.

- After the pump stops, repeat running the pump, all together run the pump for 5 times.
- Carefully put the replenishing pipe outlet back to the tank, and then read out the total chemistry value of the measuring cup.
- Calculate the average value of the CD replenishing flux for 30 seconds by dividing the total value by 5.

2. Input the CD replenishing flux into **Maintenance**.

- Run **Maintenance**, and select **Chemical Setting**.
- Input the CD replenishing flux value in **Developer** and then click **Save**.

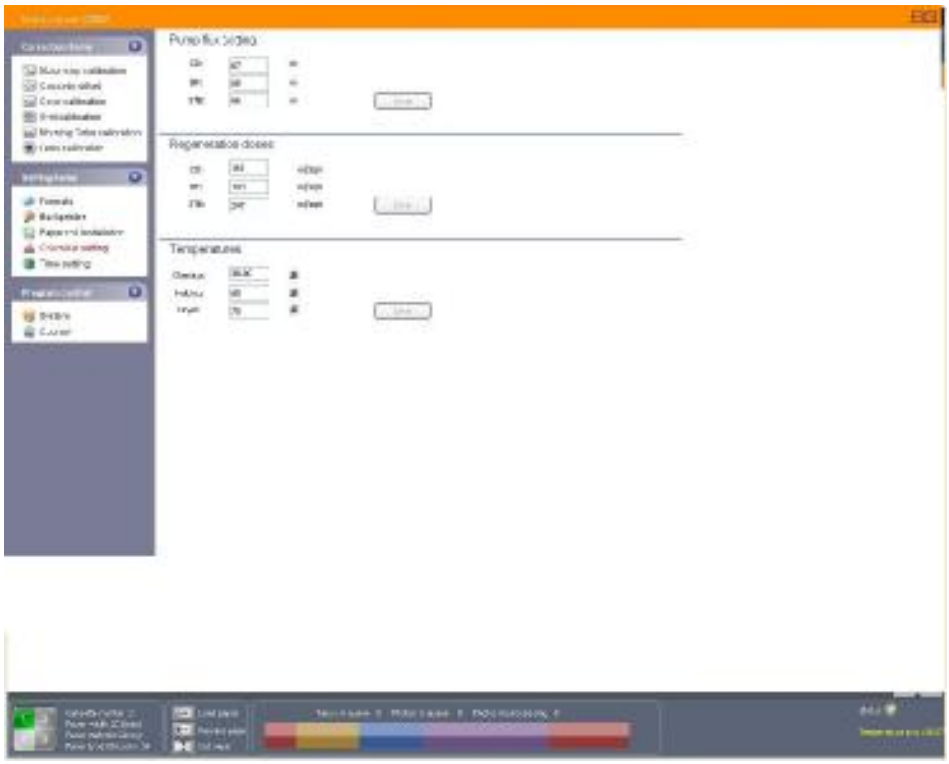
3. Repeat for BF.

4. Repeat for STB.

5. In **Maintenance** > **Chemical Setting** setup the Regeneration does value depending on the chemical specification you are using.

6. Please delete this section!! In **Maintenance** > **Chemical Setting** setup the Regeneration

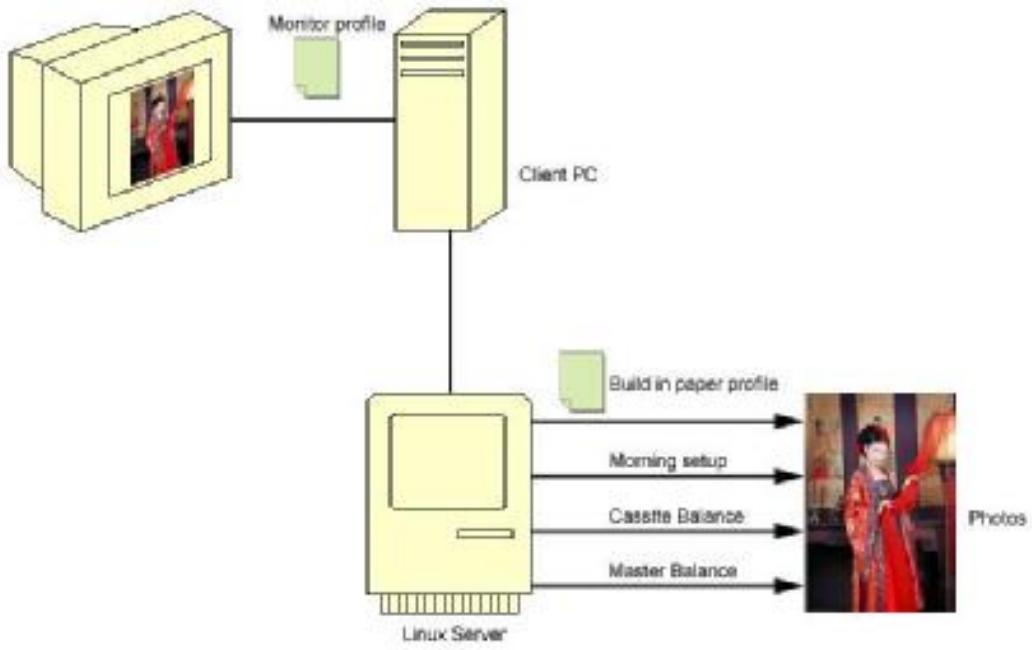
does value depending on the chemical specification you are using.



If the daily print quantity is small, and you want to keep the chemical active, the **Regeneration doses** value could be increased a little bit.

2.7 Colour management-from monitor to photos

Purpose: to ensure the colour of the photos look as close as its preview on the monitor.



Preconditions:

- Calibration with Densitometer has been performed..

3.1 DL-202Ps Densitometer

- Standard ambient light has been installed in the Studio.

It is recommended to use Philips true colour fluorescent lamp as the standard ambient light of the studio, ask Philips sales and service people for more information about the fluorescent lamp selection and installation.

Work flow:

1. Calibrate monitor.

- If the monitors colour fidelity is good and support sRGB colour management, set the monitor to the sRGB mode.

- To see if the monitor's colour fidelity is good, Open **Photoshop**, the background of **Photoshop** shall appear to be neutral grey.
- If the monitor supports sRGB colour management, sRGB mode can be set in the monitor adjustment menu that is usually under **colour management**.
- sRGB is the working colour space of **PhotoSmart** and most digital camera.

- If the monitor colour fidelity is not good (for example: old monitor) or it does not support sRGB colour management, first on the monitor adjustment menu set the monitor colour management to 6500K, and then create an ICC profile for the monitor by **Adobe Gamma** or other software.

Refer to related books of **Photoshop** for **Adobe Gamma**.

2. Register paper profiles.

Paper profiles have been created in the factory for each brand and built in the Linux PC. For user, just select the correct paper profiles for the cassettes when register the cassettes, for example: cassette 01 is loaded Kodak paper, so that you shall register cassette 01 as Kodak band.

- Run **maintenance**.
- Select **paper roll installation** and then click **Next**.
- Select cassette numbers for **registration**.
- Select paper profile for the cassette number which you have just selected.
- Complete other registrations.

If the paper profiles is deleted or lost by accidental error, the corresponding paper brand will not be available in the list of **Paper roll installation**. In this case, backup all the calibration data of the machine, reinstall Linux system with Linux recovery CD, and then restore all the calibration data.

Chapter 2 Maintenance

Data backup and restore

- **3.1**
-

- Linux system backup and recovery

3. Complete the morning setup.

2.1

Morning setup

4. Print sample photos; compare the colour between the photos and the monitor preview. If still not satisfied, use **Cassette balance** or **Master balance** for ultimate control.

The colour could be managed from monitor to photos but they will not be 100% the same. Photos and monitor interpret colour in different ways. Usually the photos are more brilliant than the monitor preview since the photos belong to another colour space which is bigger than sRGB and the colour has been transferred to a wider range than sRGB during the printing and processing.

- To use **Cassette balance**:
  - Run **Maintenance**.
  - Select **Paper roll installation**.
  - Select cassette number and then click **Modify**.
  - Change the values of C, M, Y, D, for example: + or -0.01.
  - Click **Save**.
- To use **Master balance**:
  - Run **Maintenance**.

- Select **Lens Calibration**.
- Change the values of C, M, Y, D, for example + or -0.01.
- Click **Save**.

After modifying the values, print sample photos again and repeat the above procedure until satisfied.

- **Cassette balance** only affects the colour of the photos of the given cassette.
- **Master balance** affects the colour of the photos of all the cassettes.
- Neither **Cassette balance** nor **Master balance** affects the test prints of the morning setup.
- Either **Cassette balance** or **Master balance** can be used for quick colour control especially for black and white photos.

Chapter 2 Maintenance

Chapter 3 Service

This chapter contains information for service personnel.

Prologue

Take some time to read the manual and study the machine until you understand everything well before you perform the service.

Ask somebody for help if you are not confident with the things you are going to do to avoid serious problems.

3.1 DL-202Ps Densitometer

3.1.1 Installation

The detail is as follows:

1. Insert the installation CD of DL-202Ps densitometer, click **Densitometer.msi** to begin installation wizard.
2. Follow the installation wizard to complete installation.

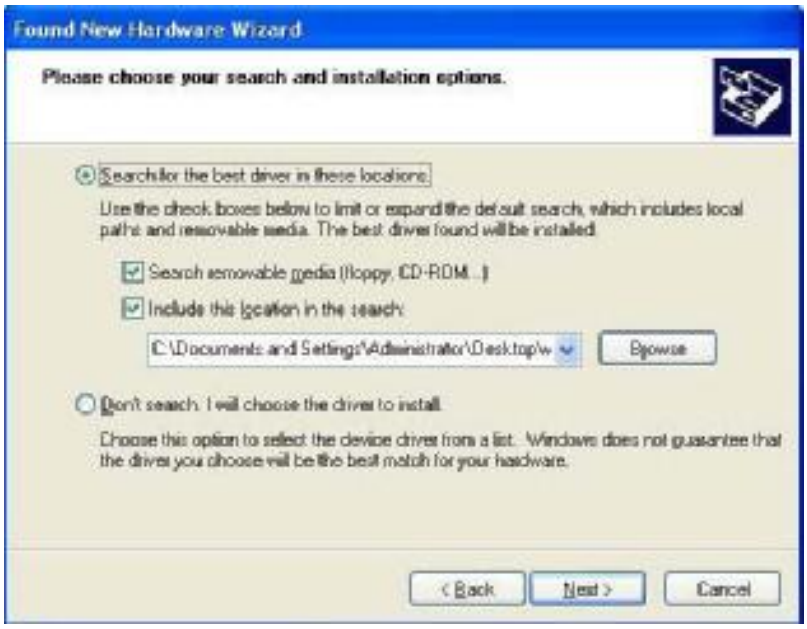
Densimeter - InstallShield Wizard
Welcome to the InstallShield Wizard for Densimeter
The InstallShield(R) Wizard will allow you to modify, repair, or remove Densimeter. To continue, click Next.
< Back
Next >
Cancel

3. Connect densitometer to the computer. With a “Beep” sound and the green LED on, the densitometer is detected by the computer (See Figure3-1).

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
CP2102 USB to UART Bridge Controller
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

（Figure3-1）

4. Insert the CD into CD-ROM. Click **Install from a list or a specific location (Advanced)** and click **Next** (See Figure 3-2)


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Administrator\Desktop\w
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

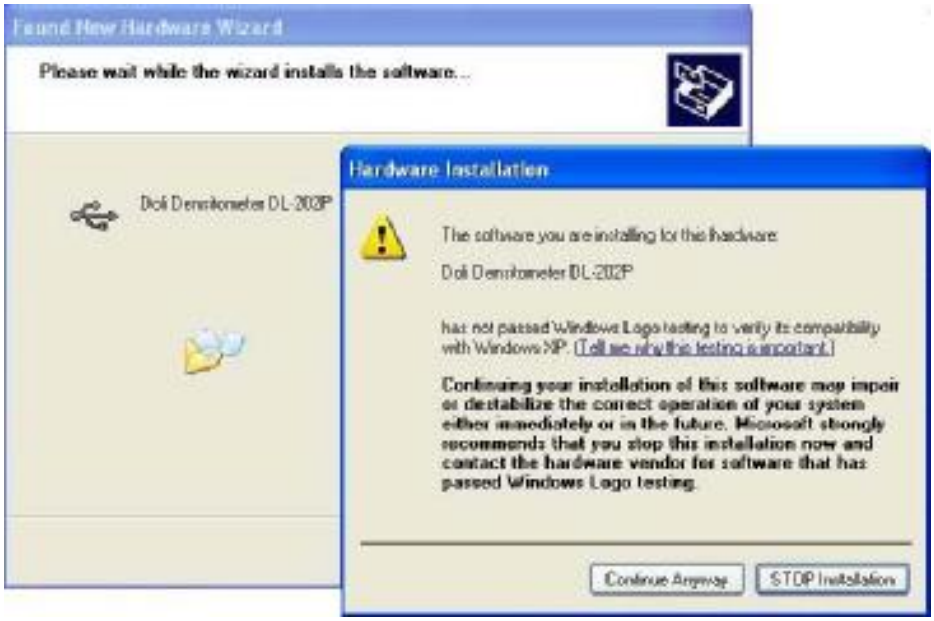
（Figure3-2）

5. Put a tick before **Search removable media (floppy, CD-ROM…)** and click **Next**, the system will search installation drive; Or, put a tick before **Include this location in the search** and click **Browse** to open densitometer drive path and click **Next** to search installation drive (See

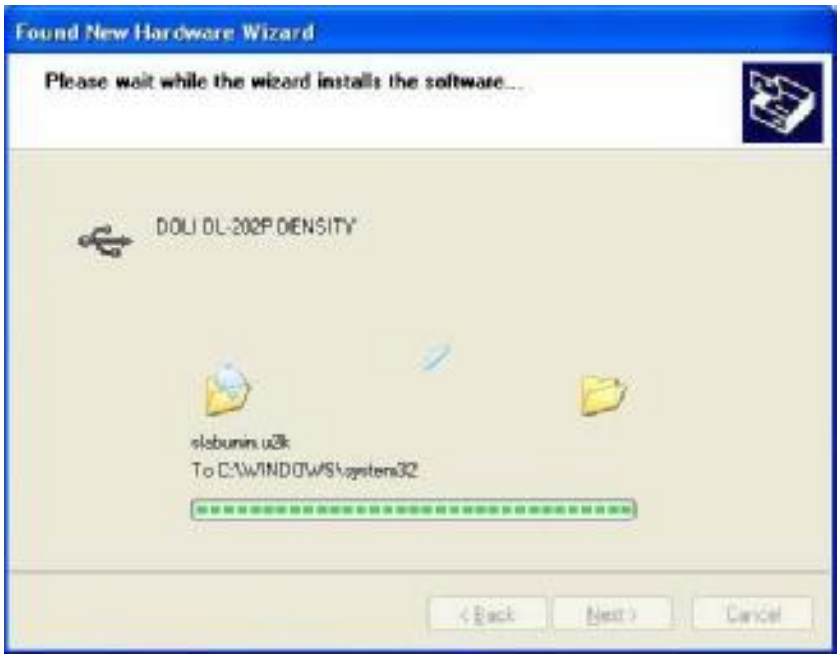
Figure 3-3)

（Figure3-3）

Click **Continue Anyway** (see Figure 3-4 and Figure 3-5)


Found New Hardware Wizard
Please wait while the wizard installs the software...
Doli Densitometer DL-202P
Hardware Installation
The software you are installing for this hardware:
Doli Densitometer DL-202P
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

（Figure3-4）



（Figure3-5）

Click **Finish** to finish installation of USB drive (see Figure 3-6)

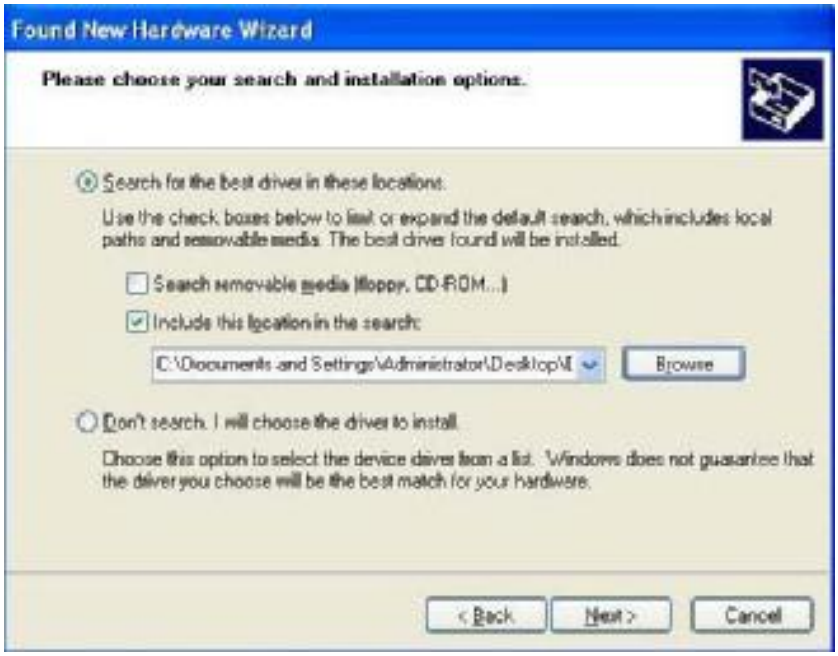
（Figure3-6）

6. System search again (see Figure 3-7)

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
CP2102 USB to UART Bridge Controller
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

（Figure3-7）

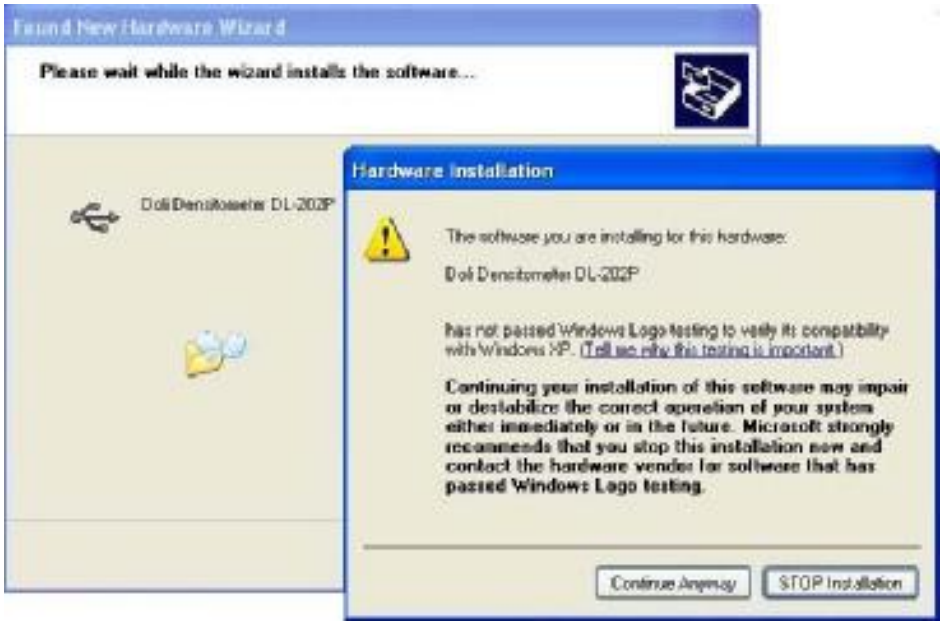
7. Click **Install from a list or a specific location (Advanced)** and click **Next** (see Figure 3-8)


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\Administrator\Desktop\U
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

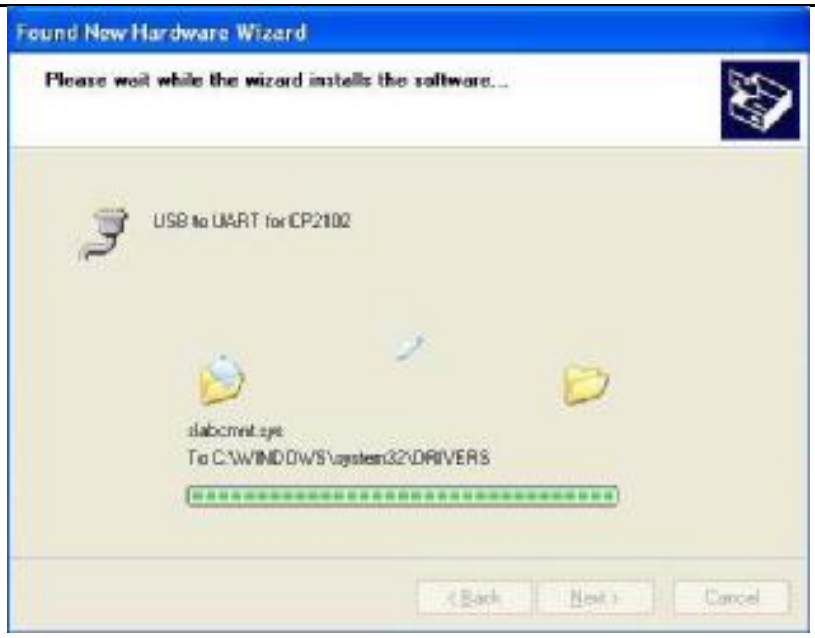
（Figure3-8）

8. Repeat step 5 until serial port drive installation finishes (see Figure3-9, Figure 3-10 and Figure 3-11)

（Figure3-9）


Found New Hardware Wizard
Please wait while the wizard installs the software...
Doli Densitometer DL-202P
Hardware Installation
The software you are installing for this hardware:
Doli Densitometer DL-202P
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

（Figure3-10）



（Figure3-11）

9. Click **Finish** (see Figure 3-12)

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
USB to UART for CP2102
Click Finish to close the wizard.
< Back
Finish
Cancel

（Figure3-12）

10. After finishing the above steps, densitometer drive installation is finished (see Figure 3-13)

（Figure3-13）

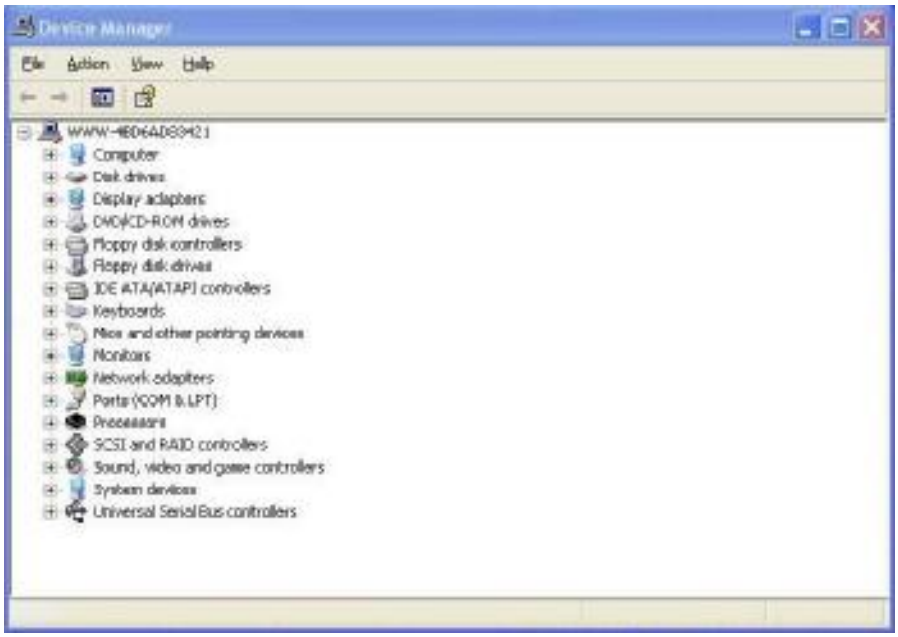
11. Check densitometer serial port in **Device Manager**：

Right click **My Computer** and select **properties** (see Figure 3-14)

System Properties
Advanced
Automatic Updates
Remote
General
Computer Name
Hardware
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

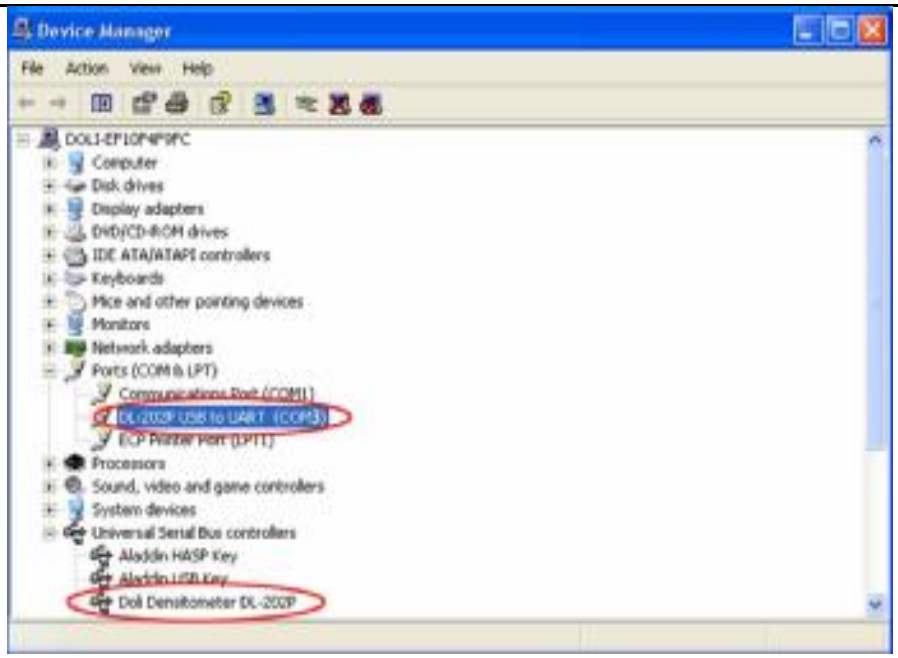
（Figure3-14）

Click **Device Manager** (see Figure 3-15)



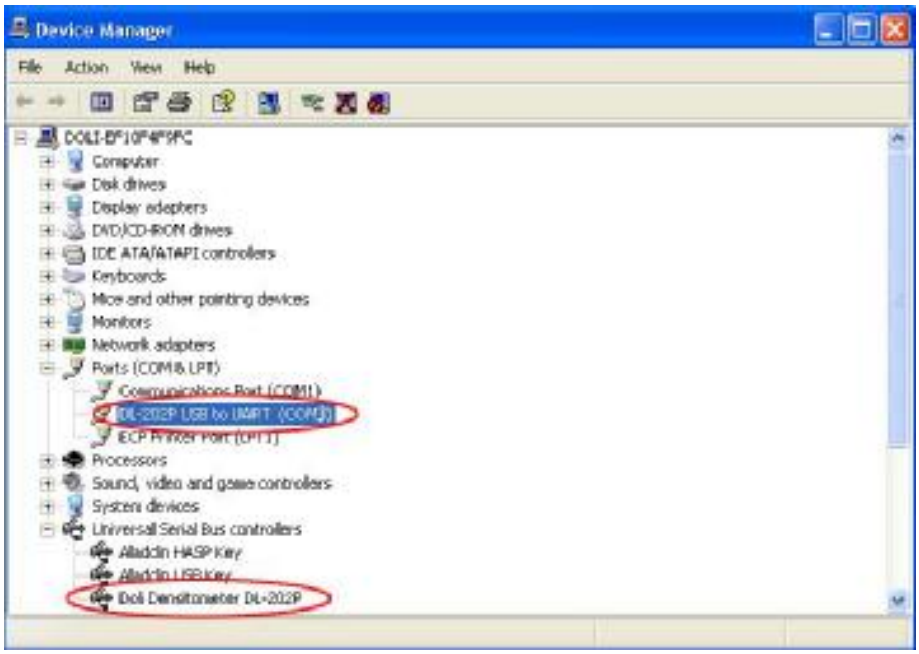
（Figure3-15）

Click + before **Ports (COM&LPT)** and **Universal Serial Bus controllers** (see Figure 3-16)

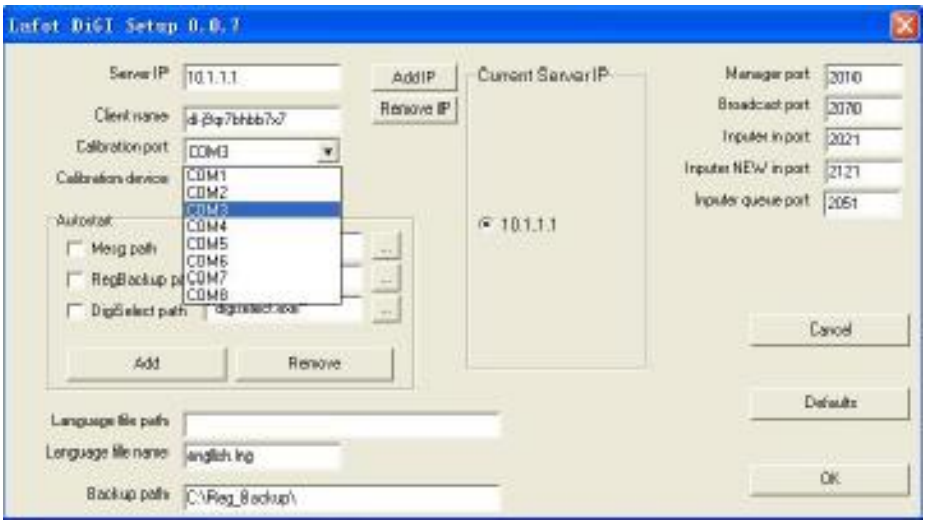


（Figure3-16）

As you can see from the above, serial port and USB drive of densitometer installation is finished. Its serial port is COM3.



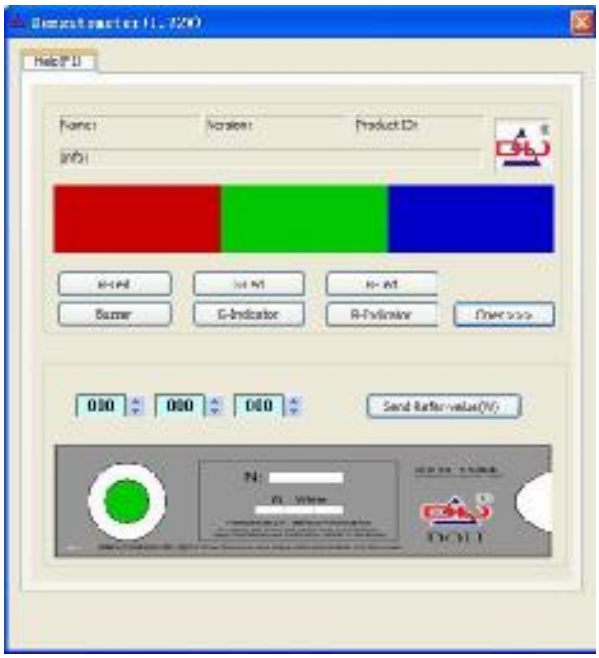
12. On the Windows PC, click Start, and then Run, and then key in \\10.1.1.1\winsoftware, and then enter.
13. Run Config.



14. In Calibration port box, select the correct COM port number.
15. Click OK to close Config.

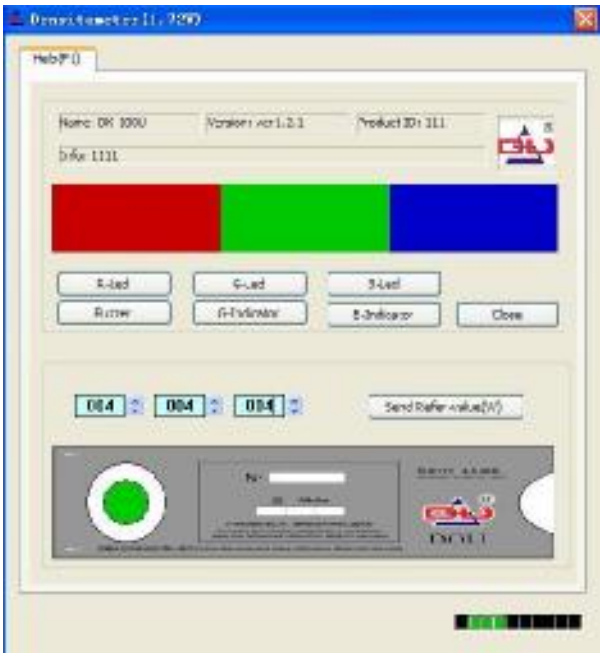
3.1.2 Show densitometer test value

1. Open DL-202Ps User Interface (Usually in Windows PC E:\DoLi\Densimeter or Windows Desktop Start -> Programs-> Doli -> Densitometer).



（Figure3-17）

2. Click **Open>>>** on the right side to open a pull-down menu; Select the corresponding COM, you will hear beep sound and LED turns red (duration: about 0.5 S) from green and turns green again; A scroll bar pops up (keep scrolling) and corresponding information is displayed in the primary interface; Communication between densitometer and its software is established. (see Figure 3-18)



（Figure3-18）

Primary interface: After successful communication, you can see the name, version, product ID and corresponding information on the top.

The respective value of red, green and blue LED will be displayed in their corresponding areas.

The next line is for hardware testing. Click R-Led to turn on red LED, you can check from the bottom hole; the same is true of G-Led and B-LED. Click Buzzer to beep and click any button to stop. Click G-Indicator and B-Indicator to turn on top indicator.

3.1.3 Calibration

The bottom line is for calibration. It is used with a calibration strip when densitometer has deviation

Input the three values into the boxes according to calibration strip in left-right sequence. Click **Send Refer-value (W)** to save (densitometer beeps). Put the aperture on white test point, hold on to densitometer for about 6 seconds, the indicator on densitometer will flash once, and then the values will be shown up at the RGB colour blocks.

（Figure3-19）

（Figure 3-20）Calibration strip

In calibration strip, the **Test point** is used for densitometer calibration; **Calibration value** is the value of R, G and B of the test point. For the sake of getting correct color of photo, please keep these areas clean! Keep calibration strip safe! Make sure no scratch!

When measuring, the hole of the densitometer base should be placed right in the middle of Test point.

Check calibration: After finishing the above step, position the densitometer on the white test point. When the densitometer beeps, check the values. If there is great deviation, it means the densitometer is not correctly calibrated. Repeat the above steps; if there is still great deviation (deviation within 001-002 is acceptable), you can restore factory data; Go to icon , hold on to **Ctrl** key and left key of mouse. A dialogue box will pop up in 5 seconds (see Figure 3-21). Click **OK**.

（Figure 3-21）

Note: When densitometer data are corrupted or the deviation is unacceptable, first restore factory data. If fault still remains, change a new densitometer. We recommend you not to restore factory data frequently.

3.1.4 Open help file

Left click “Help” (Hotkey: F1) to pop up help file which contains detailed operation instruction.

3.2 Data backup and restore

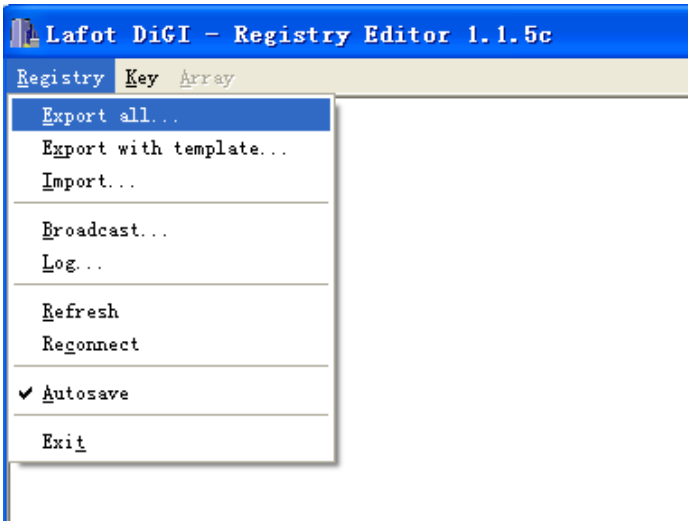
Purpose:

- To backup the calibration data to prevent unexpected data loss.
- To restore the calibration data in case unexpected data loss occur.

Backup data every time before and after a major calibration is performed.

Steps of data backup:

1. On DL-3620 machine Windows PC create a new folder, name **data backup**.
2. Backup Linux Registry.
   - On the DL-3620 machine Windows PC click **Start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software**, and then **enter**.
   - Run **Iregedit**.
   - On the left top of the window click **Registry**.
   - Click **Export all…**and then wait for a few seconds.

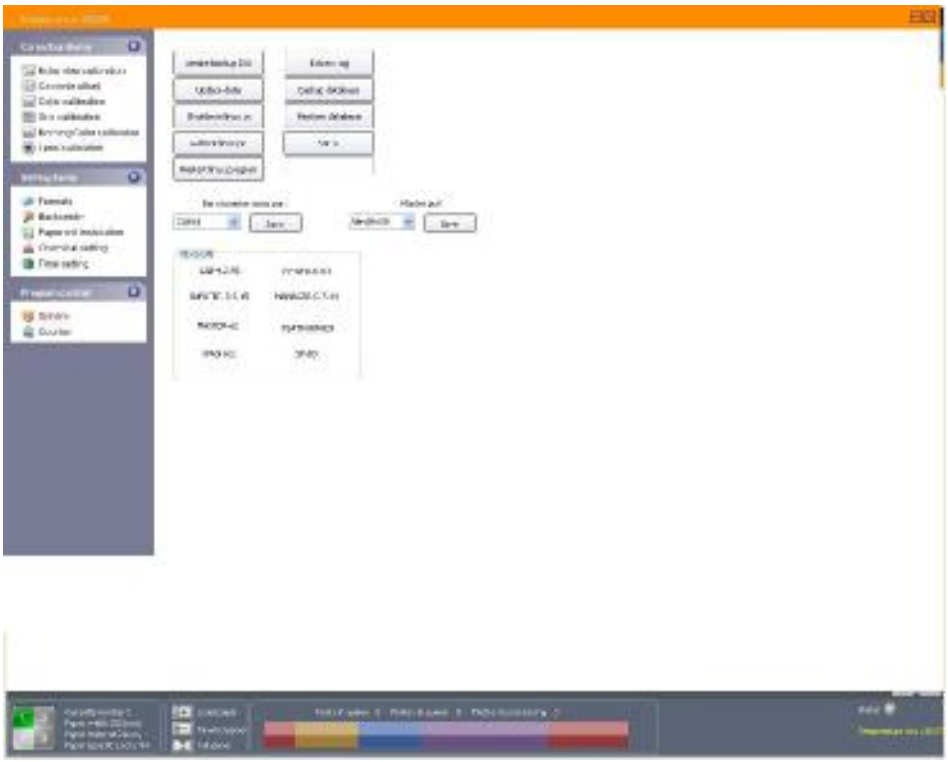


   - Specify **data backup** folder which you have just created, click **OK**.
3. Backup Mask files.
   - On DL-3620 machine Windows PC, click **Start**.
   - Key in \\10.1.1.1\tables and then enter.Select all .prn files.

- Copy and paste these files to data backup folder.

Steps of data restore:

1. Restore Linux Registry.
   - On DL-3620 machine Windows PC, click **Start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software**.
   - Run **Iregedit**.
   - On the left top of the window click **Registry**.
   - Click **Import…**.
   - Specify the data file which you have backed up in the **data backup** folder, click **Open**, and then wait a second.
2. Restore Mask files.
   - On the DL-3620 machine Windows PC, click **Start**.
   - Key in **\\10.1.1.1\tables** and then enter.
   - **Copy** and **paste** the Mask files which you have backed up in the **data backup** folder to **\\10.1.1.1\tables** folder.
3. Completion
   - Run **Maintenance**.
   - Click **System**:



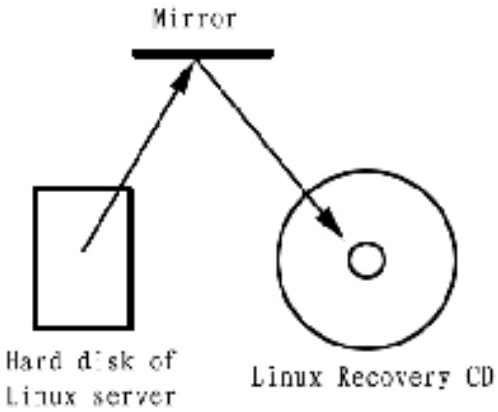
➢ Click **Update date**, and then wait 5 minutes.

3.3 Linux system backup and recovery

Purpose:

- To make a whole Linux system backup by creating a Linux recover CD.
- To restore Linux system from Linux recovery CD.

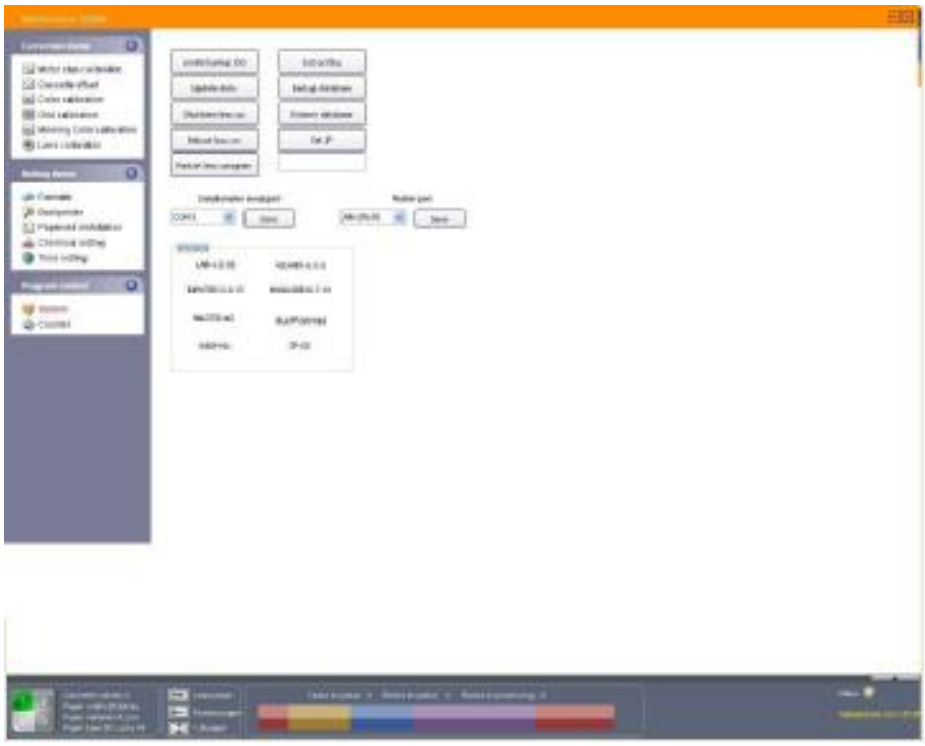
Linux recovery CD is an image of the hard disk of Linux PC. It includes all of the calibration data of the machine (Fig 3.4.1).



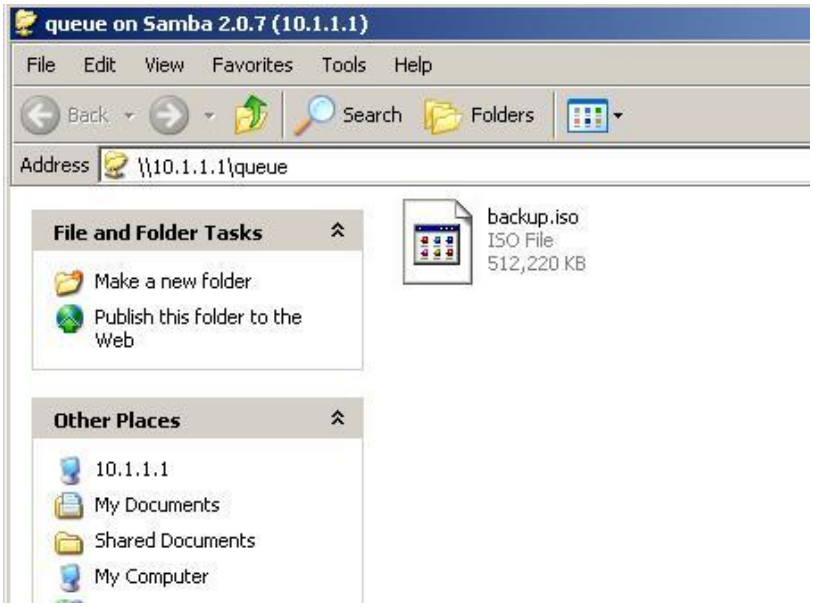
Precondition: **Nero** has been installed to the DL-3620 machine Windows computer.

Steps of Linux system backup:

- Run **maintenance**.
- Click **System**, and then click **Create backup ISO**.

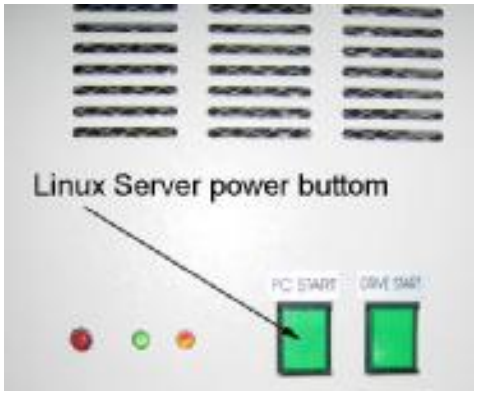


- Wait about 10 minutes; do not do anything to the machine.
- On the DL-3620 Windows PC, click **Start**.
- Click **Run**.
- Key in **\\10.1.1.1\queue** and then **enter**.
- Cut and paste the **backup.iso** file to Windows PC.



- Burn this file to a blank CD by **Burn image…** of **Nero**.

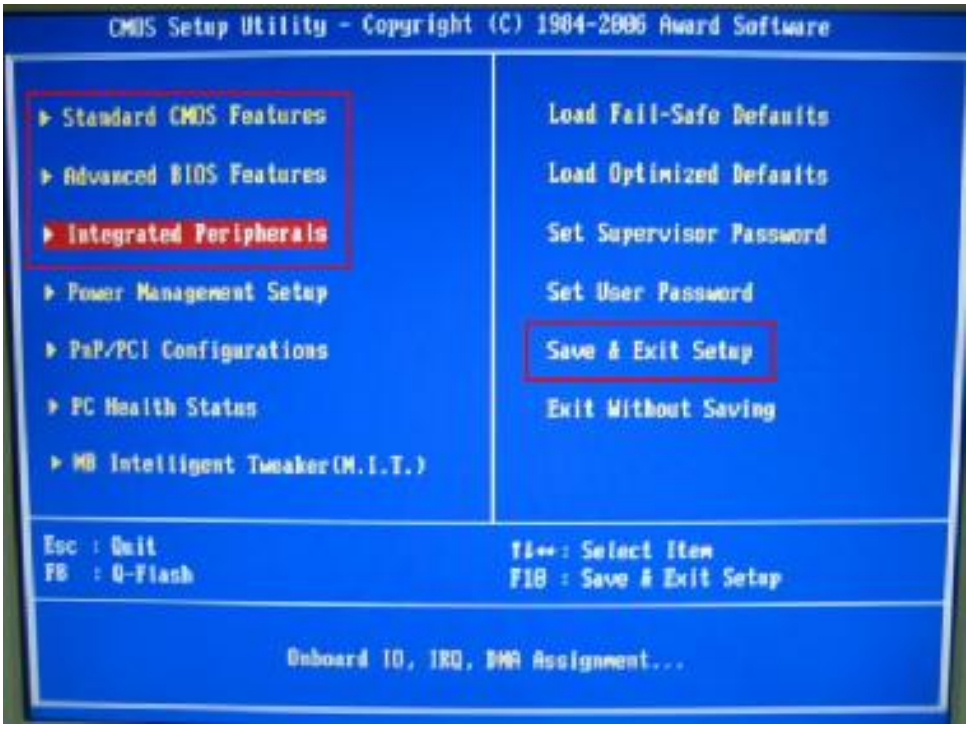
Steps of Linux system recovery:



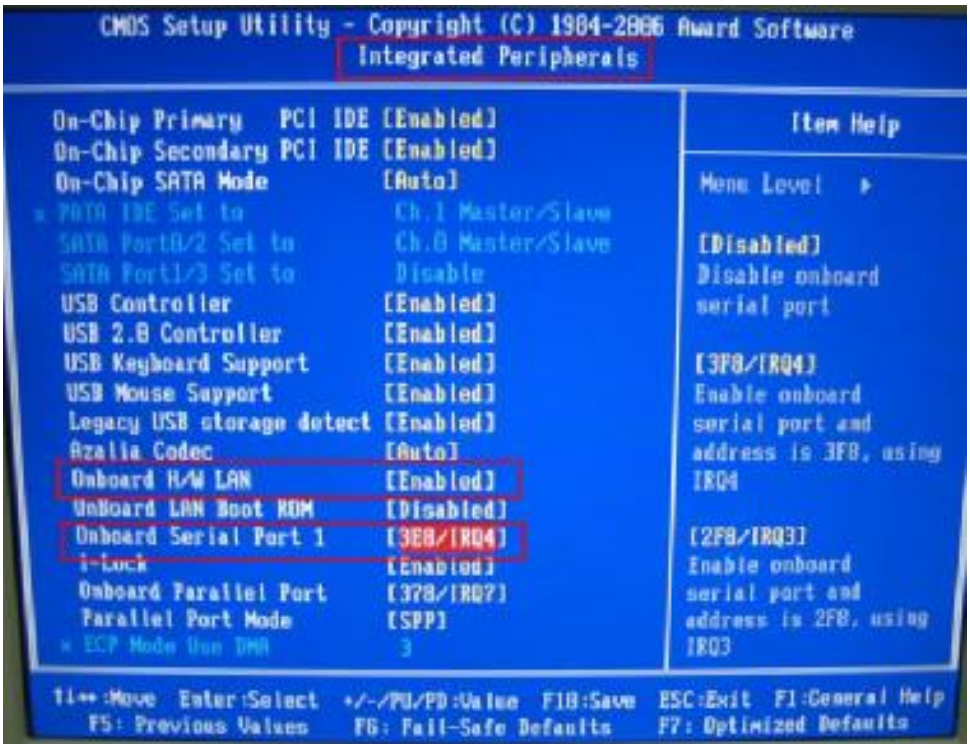
- Open the side panel of the machine.

- Connect a keyboard and a monitor to the Linux Server motherboard.

Turn the Linux PC power on, on the keyboard press Delete key to enter BIOS interface (BIOS interfaces could be different depending on the motherboard model). Check the following options:


CMOS Setup Utility - Copyright (C) 1984-2006 Award Software
Standard CMOS Features
Advanced BIOS Features
Integrated Peripherals
Power Management Setup
PnP/PCI Configurations
PC Health Status
MB Intelligent Tweaker(M.I.T.)
Load Fail-Safe Defaults
Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
Exit Without Saving
Esc : Quit
F8 : Q-Flash
↑↓→←: Select Item
F10 : Save & Exit Setup
Onboard IO, IRQ, DMA Assignment...

CMOS Setup Utility - Copyright (C) 1984-2006 Award Software
Standard CMOS Features
Date (mm:dd:yy) Fri, Jan 5 2007
Time (hh:mm:ss) 10 : 48 : 16
IDE Channel 0 Master [WDC WD800JD-19LSA0]
IDE Channel 0 Slave [None]
IDE Channel 1 Master [None]
IDE Channel 1 Slave [SONY CD-RW CRX321]
Drive A [1.44M, 3.5"]
Drive B [None]
Floppy 3 Mode Support [Disabled]
Halt On [All , But Keyboard]
Base Memory 640K
Extended Memory 2047M
Total Memory 2048M
Item Help
Menu Level ▶
Change the day, month, year
(Week)
Sun. to Sat.
(Month)
Jan. to Dec.
(Day)
1 to 31 (or maximum allowed in the month)
(Year)
1999 to 2099
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults


CMOS Setup Utility - Copyright (C) 1984-2006 Award Software
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip Secondary PCI IDE [Enabled]
On-Chip SATA Mode [Auto]
PATA IDE Set to Ch.1 Master/Slave
SATA Port0/2 Set to Ch.0 Master/Slave
SATA Port1/3 Set to Disable
USB Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Keyboard Support [Enabled]
USB Mouse Support [Enabled]
Legacy USB storage detect [Enabled]
Azalia Codec [Auto]
Onboard H/W LAN [Enabled]
OnBoard LAN Boot ROM [Disabled]
Onboard Serial Port 1 [3E8/IRQ4]
i-Lock [Enabled]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
ECP Mode Use DMA 3
Item Help
Menu Level ▸
[Disabled]
Disable onboard serial port
[3F8/IRQ4]
Enable onboard serial port and address is 3F8, using IRQ4
[2F8/IRQ3]
Enable onboard serial port and address is 2F8, using IRQ3
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The Linux mother board has two COM port, it is set as:

COM1: **3F8/IRQ4**

COM2: **3E8/IRQ3 (If necessory)**

CMOS Setup Utility - Copyright (C) 1984-2006 Award Software
Advanced BIOS Features
▸ Hard Disk Boot Priority [Press Enter]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [CDROM]
Password Check [Setup]
Limit CPUID Max. to 3 [Disabled]
No-Execute Memory Protect [Enabled]
CPU Thermal Monitor 2(TM2) [Enabled]
Item Help
Menu Level ▸
Select Boot Device Priority
[Floppy]
Boot from floppy
[LS120]
Boot from LS120
[Hard Disk]
Boot from HDD
[CDROM]
Boot from CDROM
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

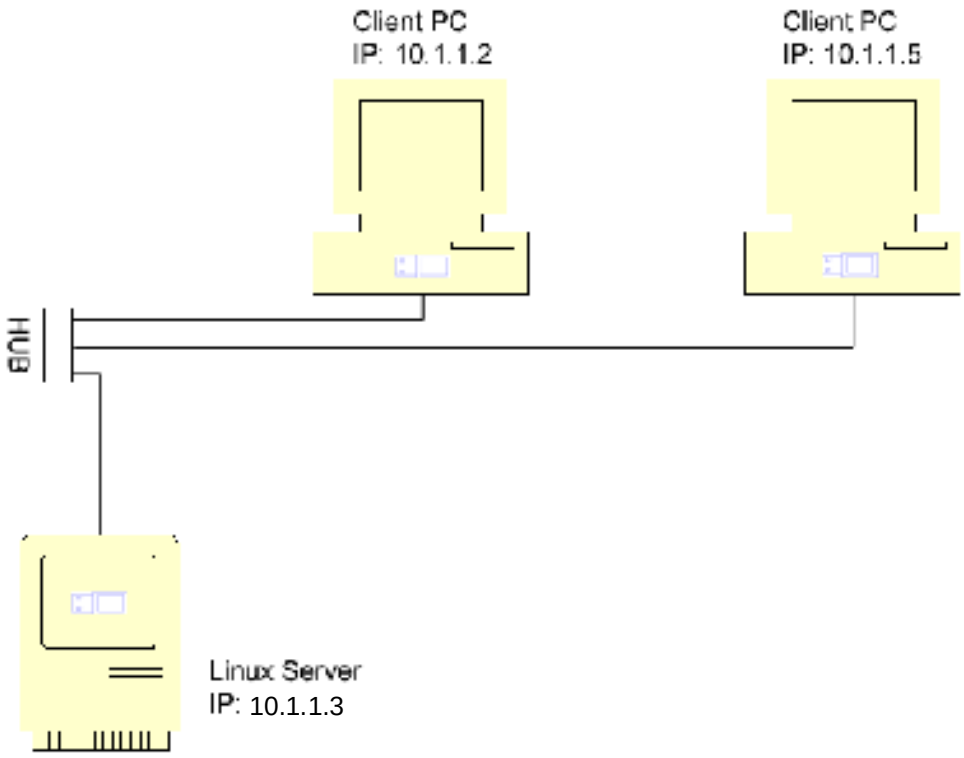
Usually the **BIOS** of the Linux PC motherboard has been configured in the factory, only the **First Boot Device** shall be re-configured after installing the external CD-Drive.

Steps:

- Insert the Linux recovery CD to the CD-ROM of the Linux PC.
- Press the Linux PC power button to turn Linux PC off.
- Press the Linux PC power button again to turn Linux PC on.
- Wait about 10 minutes, the Linux system will be recovered automatically, at this time you can see the installation information on the Linux LCD Panel.
- Finally you may be requested to enter a serial number, just press OK button on the Linux LCD panel, and then wait till finish; If you see “Clean up” message, just wait 5 minutes then go to next step.
- Press the Linux PC power button to turn Linux PC off,
- Press the Linux PC power button again to turn Linux PC on, and then eject the Linux Recovery CD immediately (otherwise the Linux system will be recovered again).

3.4 Client PC setup

DL-3620 is a network printer. User can connect up to 253 clients PC to the Linux PC via network.



PhotoSmart is the only software which can send orders to the Linux PC for printing.

To setup **PhotoSmart** on each PC, a dongle (e.g. license) is needed.

The computers talk to each other by TCP/IP protocol on the network.

The IP address of the Linux PC is **10.1.1.3**, and it is fixed and cannot be changed; the IP address of client PC can be configured by user.

Purpose: To configure a new PC connected to DL-3620 machine for printing.

Precondition:

- The network card has been setup on the new PC;
- The new PC has been connected to the HUB via network cable.

Things required:

- A dongle for PhotoSmart

  The dongle for **PhotoSmart** and the dongle for Linux PC are different and cannot be exchanged.

- Dongle driver
- PhotoSmart setup program
- vcredist_x86.exe

  - The dongle driver program **HASP-64** and the **PhotoSmart** setup program can be found in the **DL-3620** folder of the DL-3620 machine Windows PC hard disk.
  - The name of the dongle driver setup program could not be **HASP-64, and** the name of **PhotoSmart** setup program could be not as the technical upgrade. Ask the service people for the latest information.

- A spare USB2.0 port of the new PC motherboard.

Steps:

1. Configure IP address for a new PC.
   - On the new PC, click **Start** and point to **settings,** then open **Control panel**.
   - Open **Network connections**。
   - Highlight **Local Area Connection**, and right click mouse, then select **Properties**.
   - Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

- Select **Use the following IP address:,** set the IP address and the Subnet mask as the illustration below:

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
10 . 1 . 1 . 5
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

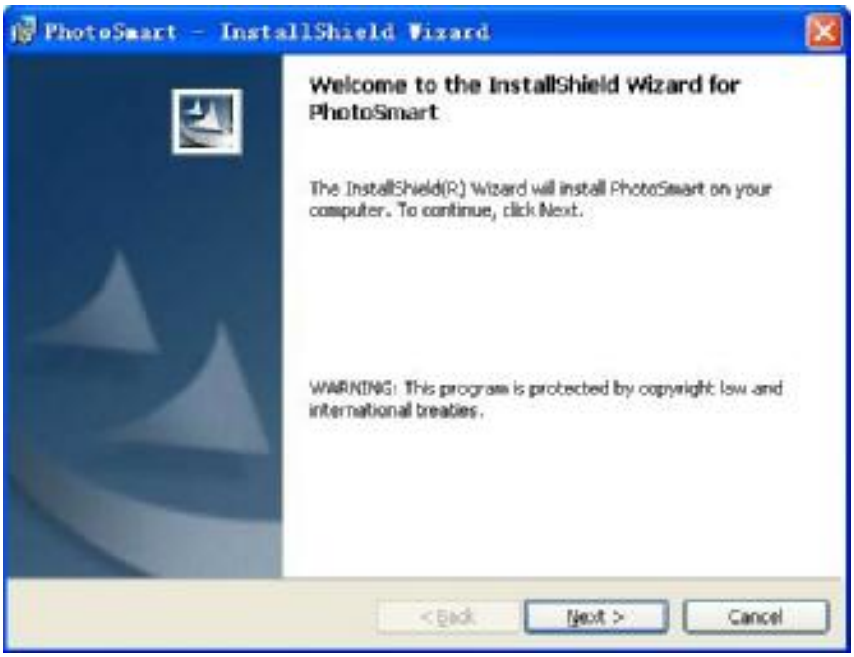
- Click **OK**.

2. Insert dongle to USB2.0 port of the motherboard.

3. Run **HASP-64** to install driver for the dongle.

HASP HL Device Driver Installation
HASP
HL
Aladdin
Welcome
This installation program will install the HASP HL Device Driver for Microsoft Windows 98/ME and Windows 2000/XP/2003 on your system.
HASP HL Drive Version: 5.12
In order to update the device drivers, all open processes accessing the driver have to be closed. If you have any running applications using HASP, please close them now. Otherwise, the installation program will try to terminate these processes.
< Back
Next >
Cancel

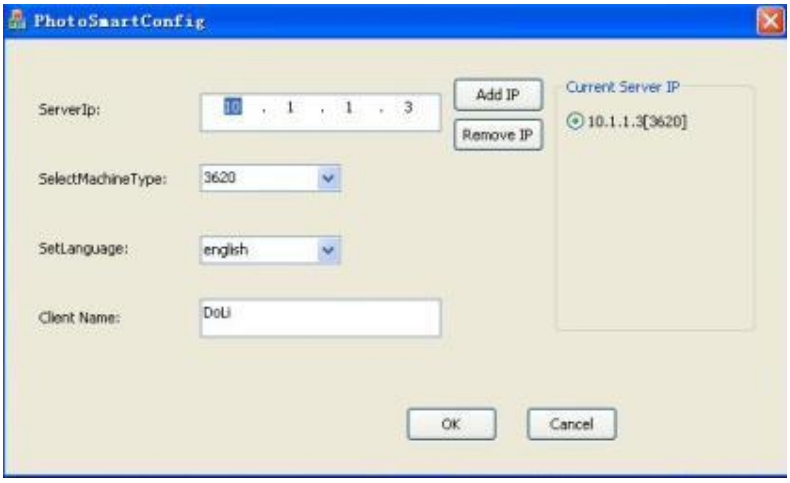
4. Run **PhotoSmart** to Install **PhotoSmart** on the new PC.


PhotoSmart - InstallShield Wizard
Welcome to the InstallShield Wizard for PhotoSmart
The InstallShield(R) Wizard will install PhotoSmart on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

5. Set language file and Doli minilab model for the new PC.

   - On the new PC click **Start** and then **Programs**.

- Find **Doli** folder and **PhotoSmart** folder, and then enter **PhotoSmartConfig**.



- Set **Language file name** to **english.lng**.
- Select Machine type of current Doli minilab.
- Click **OK**.

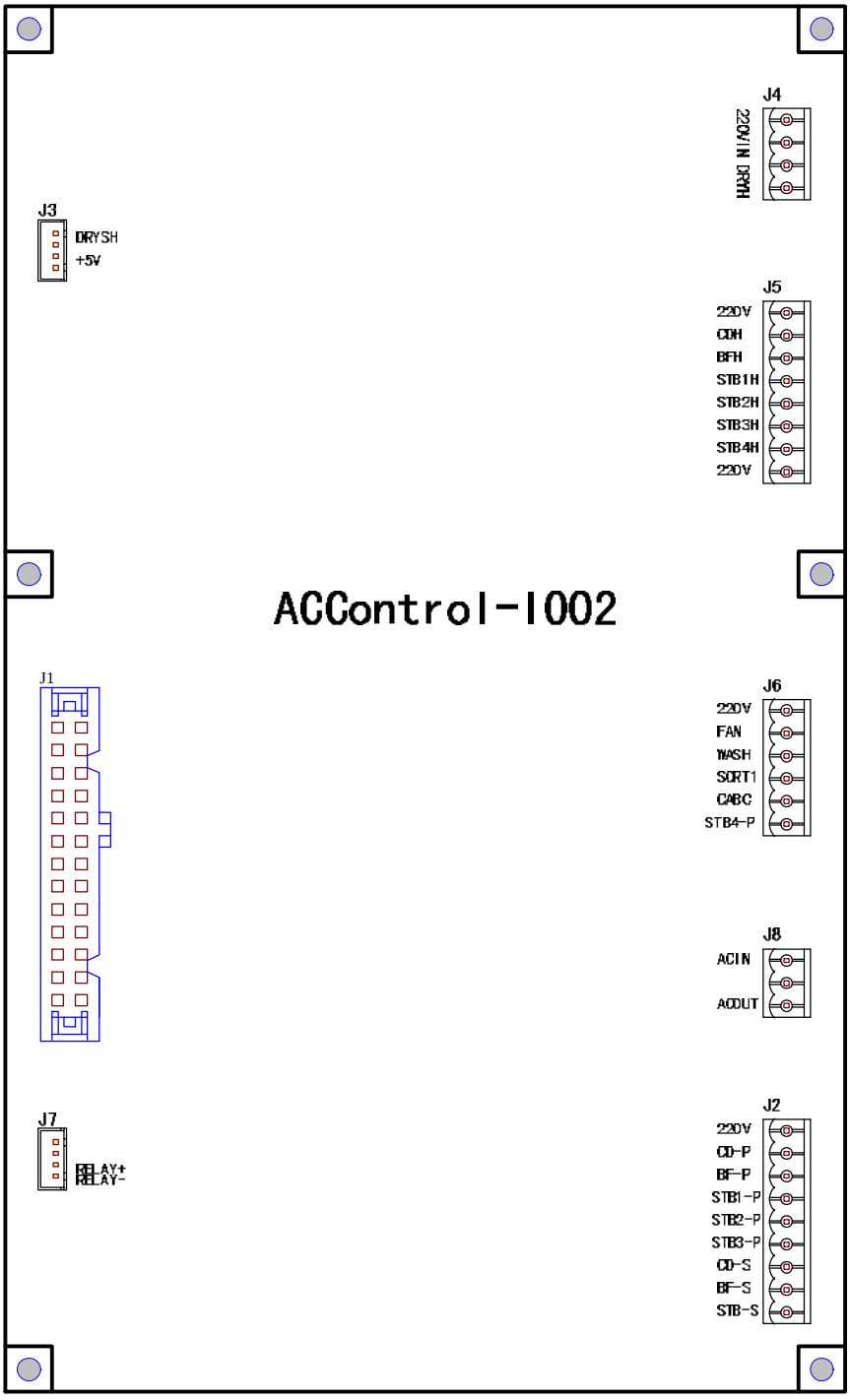
6. Set User Accounts Control setting (For Windows®7)

   On new PC click My Computer -> Control Panel -> User Accounts and Family Safty -> User Accounts

   Click User Accounts Control setting and set it to lowest.

Chapter 4 Printed Circuit Board and Description

4.1 ACControl-I002 PCB



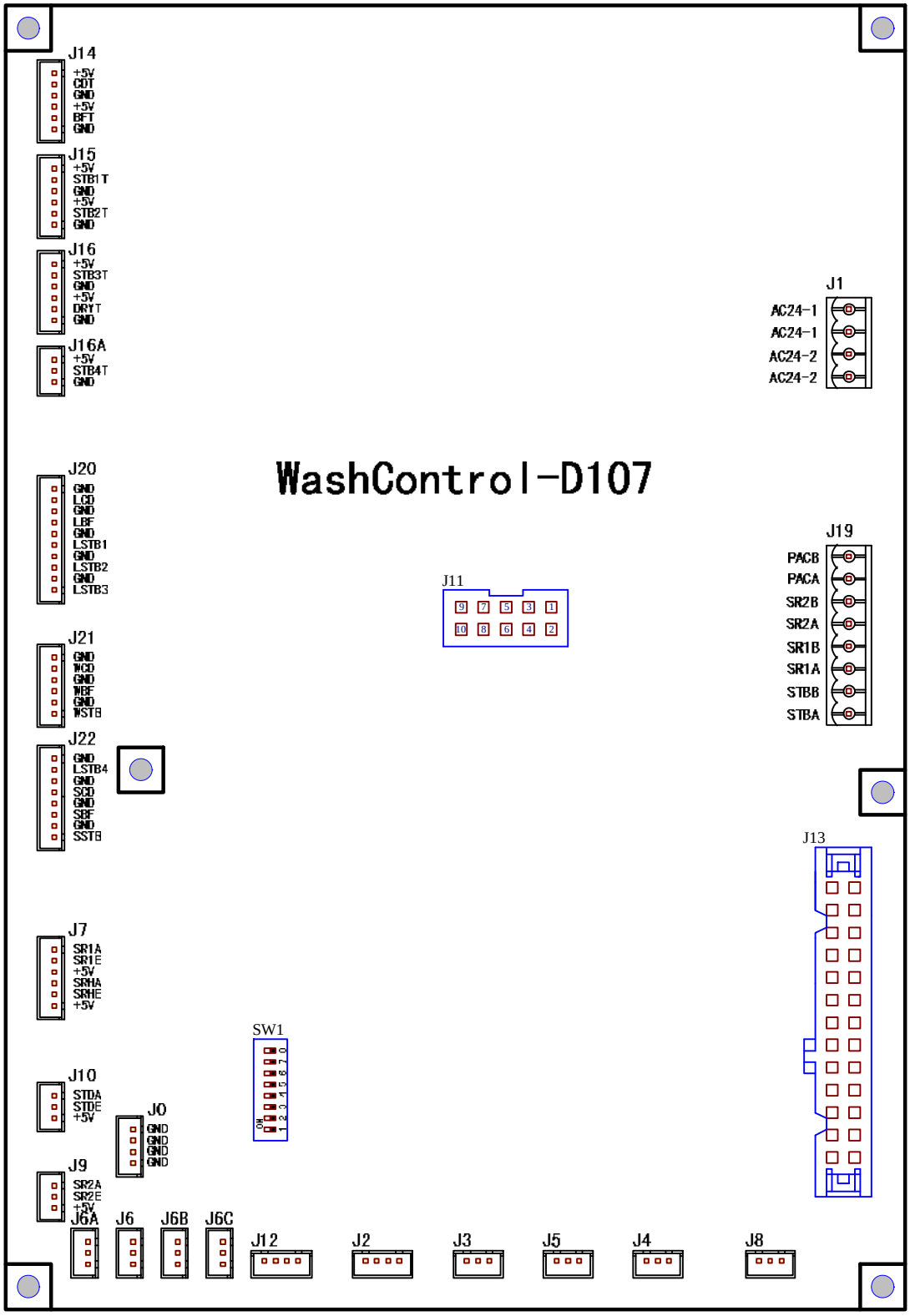
4.1.1 Disposition and Descrption

Socket Code	SN	Wire Definition	Description	Wire No.
J1	1	STBSUP	STB replenish pump control signal	
	2	BFSUP	BF replenish pump control signal	
	3	CDSUP	CD replenish pump control signal	
	4	STB3PUMP	STB3 circulation pump control signal	
	5	STB2PUMP	STB2 circulation pump control signal	
	6	STB1PIMP	STB1 circulation pump control signal	
	7	BFPUMP	BF circulation pump control signal	
	8	CDPUMP	CD circulation pump control signal	
	9	CABC	Sprinkling pump control signal	
	10	SORT-AC1	Standby	
	11	WASHS	Paper processor motor control signal	
	12	CDFANS	CD Cooling fan control system	
	13	STB4HS	Standby	
	14	STB3HS	STB3 heater control signal	
	15	STB2HS	STB2 heater control signal	
	16	STB1HS	STB1 heater control signal	
	17	BFHS	BF heater control signal	
	18	CDHS	CD heater control signal	
	19	DRYHS	Dryer heater control signal	
	20			
	21			
	22	STB4-P	Standby	
	23			
	24			

Socket Code	SN	Wire Definition	Description	Wire No.
	25	5V	Power Supply	
	26	5V	Power Supply	
J2	1	220V	AC220V Live wire	L5
	2	CD-P	CD circulation pump	A0202
	3	BF-P	BF circulation pump	A0203
	4	STB1-P	STB1 circulation pump	A0204
	5	STB2-P	STB2 circulation pump	A0205
	6	STB3-P	STB3 circulation pump	A0206
	7	CD-S	CD replenish pump	A0207
	8	BF-S	BF replenish pump	A0208
	9	STB-S	STB replenish pump	A0209
J3	1	+5V	Power supply	
	2			
	3	DRYHS	Dryer heater signal	
	4			
J4	1		Standby	
	2			
	3			
	4			
J5	1	220V	AC220V Live wire	L5
	2	CDH	CD heater	A0502
	3	BFH	BF heater	A0503
	4	STB1H	STB1 heater	A0504
	5	STB2H	STB2 heater	A0505
	6	STB3H	STB3 heater	A0506
	7	STB4H	Standby	
	8	220V	AC 220V Live wire	L5
J6	1	220V	AC 220V Live wire	L5

Socket Code	SN	Wire Definition	Description	Wire No.
	2		Standby	
	3	WASH	Paper processor motor	A0603
	4		Standby	
	5	CABC	Sprinkling pump	A0605
	6	STB4-P	Standby	
J7	1		Standby	
	2			
	3	RELAY+	AC contactor control signal +	A7
	4	RELAY-	AC contactor control signal -	
J8	1	ACIN	AC 220V live wire	L3
	2			
	3	ACOUT	AC contactor control loop	A0803

4.2 WashControl-D107 PCB



4.2.1 Functions

- Receive temperature signal of working tanks and dryer from temperature sensors.
- Receive level signal of working tanks, replenisher tanks and waste tanks from level sensors.
- Receive signal of sorter sensors.
- Control temperatures of working tanks.

4.2.2 Adjustment for replacement

- Set DIP switch to be the same as the previous board.

#	Factory default setting
1	OFF
2	OFF
3	OFF
4	OFF
5	OFF
6	OFF
7	OFF
8	ON

- Re-adjust trimmers for temperature calibration.

2.3

Temperature calibration

4.2.3 Desposition and Desposition

Socket Code	SN	Wire Definition	Description	Wire No.
J0	1	GND	GND	
	2		GND	
	3		GND	
	4		GND	
J1	1	AC24V1	AC 24V Power Supply	C0101
	2	AC24V1		
	3	AC24V2		
	4	AC24V2		C0104
J2	1		Main Serial Communication	
	2			
	3			
	4			
J3	1		Standby	
	2			
	3			
J4	1		Serial communication 2	C4
	2			
	3			
J5	1		Serial communication 3	C5
	2			
	3			
J6	1	+5V	Standy	
	2	STD2E		
	3	STD2A		
J6A	1	+5V	Standby	
	2	STD3E		
	3	STD3A		
J6B	1	+5V	Standby	
	2	STD4E		
	3	STD4A		
I6C	1	+5V	Standby	
	2	STD5E		
	3	STD5A		
J7	1	+5V	Standby	

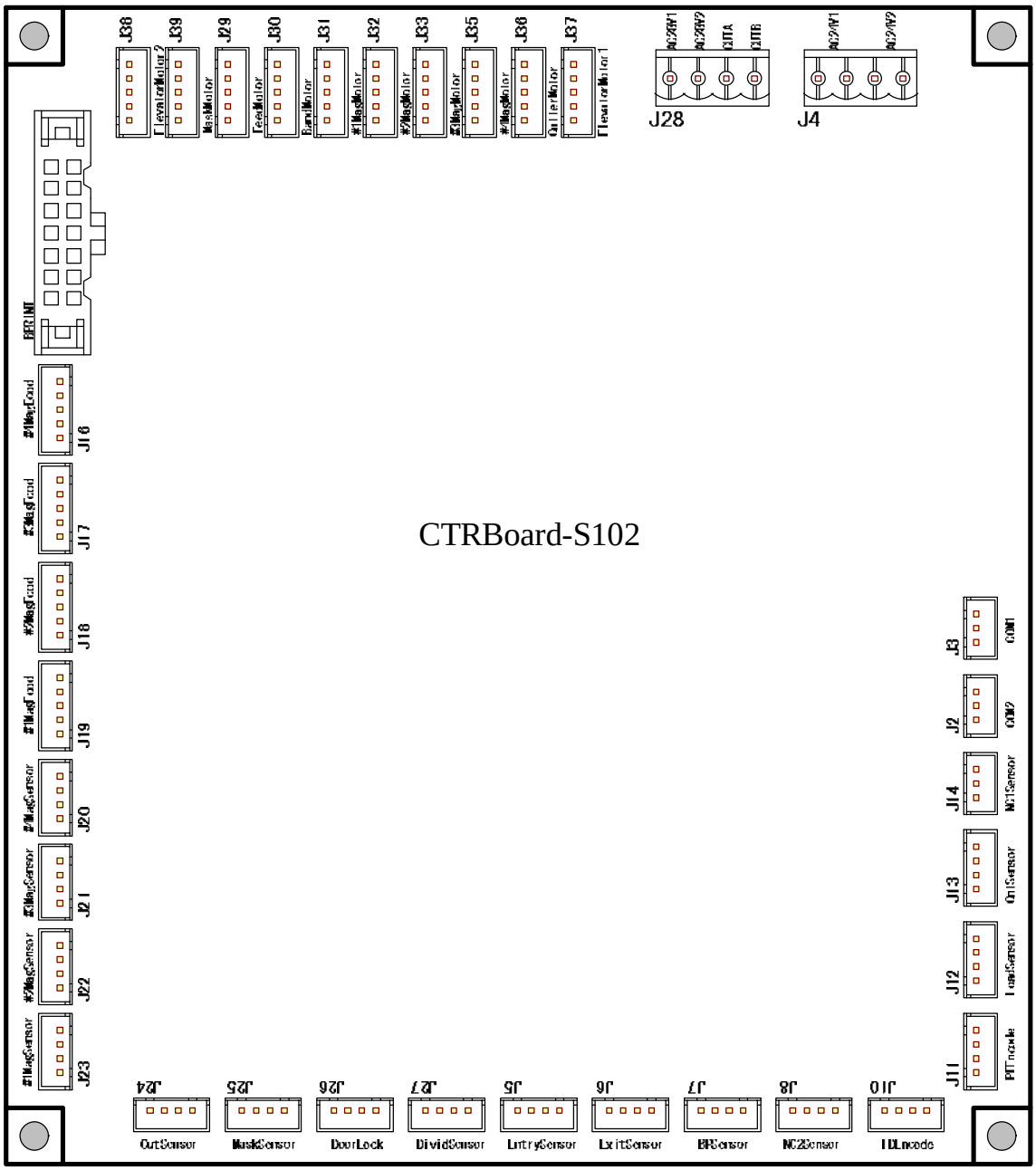
Socket Code	SN	Wire Definition	Description	Wire No.
	2	SRHE		
	3	SRHA		
	4	+5V		
	5	SR1E		
	6	SR1A		
J8	1	WASHS	Standby	
	2	GND		
	3	GND		
J9	1	+5V	Sorter sensor power supply	C9
	2	SR2E	Sorter sensor receiver	
	3	SR2A	Sorter sensor emitter	
J10	1	+5V		
	2	STD1E		
	3	STD1A		
J12	1		Main Serial Communication	C12
	2			
	3			
	4			
J13	1	STBSUP	STB replenish pump control signal	
	2	BFSUP	BF replenish pump control signal	
	3	CDSUP	CD replenish pump control signal	
	4	STB3PUMP	STB3 circulation pump control signal	
	5	STB2PUMP	STB2 circulation pump control signal	
	6	STB1PUMP	STB1 circulation pump control signal	
	7	BFPUMP	circulation pump control signal	
	8	CDPUMP	CD circulation pump control signal	
	9	CABC	Sprinkling pump control signal	
	10	SORT-AC1	Standby	
	11	WASHS	Processor motor signal	
	12	CDFANS	CD cooling fan control signal	
	13	STB4HS	Standby	

Socket Code	SN	Wire Definition	Description	Wire No.
	14	STB3HS	STB3 heater control signal	
	15	STB2HS	STB2 heater control signal	
	16	STB1HS	STB1 heater control signal	
	17	BFHS	BF heater control signal	
	18	CDHS	CD heater control signal	
	19	DRYHS	Dryer heater control signal	
	20		Standby	
	21			
	22	STB4PUMP	Standby	
	23			
	24			
	25	+5V	Power Supply	
	26	+5V	Power Supply	
J14	1	5V	CD Temperature sensor 5V	C14
	2	CDT	CD Temperature sensor signal	
	3	GND	CD Temperature sensor sheild	
	4	5V	BF Temperature sensor 5V	
	5	BFT	BF Temperature sensor signal	
	6	GND	BF Temperature sensor shield	
J15	1	5V	STB1 temperature sensor 5V	C15
	2	STB1T	STB1 temperature sensor signal	
	3	GND	STB1 temperature sensor shield	
	4	5V	DC5V	
	5	STB2T	STB2 temperature sensor signal	
	6	GND	STB2 temperature sensor shield	
J16	1	5V	STB3 temperature sensor 5V	C16

Socket Code	SN	Wire Definition	Description	Wire No.
	2	STB3T	STB3 temperature sensor signal	
	3	GND	STB3 temperature sensor shield	
	4	5V	Dryer temperature sensor 5V	
	5	DRYT	Dryer temperature sensor signal	
	6	GND	Dryer temperature sensor shield	
J16A	1	+5V	Standby	
	2	STB4T		
	3	GND		
J19	1	PACB	Standby	
	2	PACA		
	3	SR2B	Sort motor A	C1903
	4	SR2A	Sort motor B	C1904
	5	SR1B	Standy	
	6	SR1A		
	7	STBB		
	8	STBA		
J20	1	LSTB3	STB3 level sensor signal	C20S3
	2	GND	STB3 level sensor shield	
	3	LSTB2	STB2 level sensor signal	C20S2
	4	GND	STB2 level sensor shield	
	5	LSTB1	STB1 level sensor signal	C20S1
	6	GND	STB1 level sensor shield	
	7	LBF	BF level sensor signal	C20BF
	8	GND	BF level sensor shield	
	9	LCD	CD level sensor signal	C20CD
	10	GND	CD level sensor shield	
J21	1	WSTB	STB waste level sensor signal	C21
	2	GND	STB waste level sensor shield	
	3	WBF	BF waste level sensor signal	

Socket Code	SN	Wire Definition	Description	Wire No.
	4	GND	BF waste level sensor shield	
	5	WCD	CD waste level sensor signal	
	6	GND	CD waste level sensor shield	
J22	1	SSTB	STB replenishing level sensor signal	C22
	2	GND	STB replenishing level sensor shield	
	3	SBF	BF replenish level sensor signal	
	4	GND	BF replenish level sensor shield	
	5	SCD	CD replenish level sensor signal	
	6	GND	CD replenish level sensor shield	
	7	LSTB4	Standby (Short)	
	8	GND		

4.3 CtrlBoard-S102 board



4.3.1 Functions

- Supply power to paper loading step motor, exposure platform synch belt step motor, and cutter motor.
- Receive signal from paper inlet sensor, paper loading sensor, STA sensor, cutter sensor, and start sensor.
- Receive signal from paper magazine ID sensor.

4.3.2 Disposition and description

Socket Code	SN	Wire Definition	Description	Wire No.
J2	1	TXD	STANDBY	
	2	RXD		
	3	GND		
J3	1	RXD	Serial Communication11	BA03
	2	TXD		
	3	GND		
J4	1	AC24V1	24V power supply	BA401
	2			
	3	AC24V2	24V power supply	BA404
	4			
J5	1	GND	Carrier Entrance Sensor GND	BA5
	2	EntrySensor1	Carrier Entrance Sensor Signal 1	
	3	EntrySensor2	Carrier Entrance Sensor Signal 2	
	4	+5V	Carrier Entrance Sensor Power Supply	
J6	1	GND	Carrier Exit Sensor GND	BA6
	2	ExitSensor1	Carrier Exit Sensor Signal 1	
	3	ExitSensor2	Carrier Exit Sensor Signal 2	
	4	+5V	Carrier Exit Sensor Power Supply	

Socket Code	SN	Wire Definition	Description	Wire No.
J7	1	GND	Backprint sensor GND	BA7
	2	BPSensor1	Backprint sensor signal 1	
	3	BPSensor2	Backprint sensor signal2	
	4	+5V	Backprint sensor Power supply	
J8	1	GND	STANDBY	
	2	NC2Sensor1		
	3	NC2Sensor2		
	4	+5V		
J10	1	GND	Paper advance Encoder GND	BA10
	2	GND	Paper advance Encoder GND	
	3	FDEncode2	Paper advance Encoder Signal	
	4	+5V	Paper advance Encoder Power Supply	
J11	1	GND	Platform Encoder GND	BA11
	2	GND	Platform Encoder GND	
	3	PFEncode	Platform Encoder Signal	
	4	+5V	Platform Encoder Power Supply	
J12	1	GND	Paper Loading Sensor GND	BA12
	2	LoadSensor1	Paper Loading Sensor Signal 1	
	3	LoadSensor2	Paper Loading Sensor Signal 2	
	4	+5V	Paper Loading Sensor Power Supply	
J13	1	GND	STA Sensor GND	BA13
	2	CnSensor1	STA Sensor Signal 1	
	3	CnSensor2	STA Sensor Signal 2	
	4	+5V	STA Sensor Power Supply	
J14	1	GND	STANDBY	
	2	NC1Sensor		

Socket Code	SN	Wire Definition	Description	Wire No.
	3	+5V		
J16	1	#4MagEcod1	#4 cassette encode 1	BA16
	2	#4MagEcod2	#4cassette encode 2	
	3	#4MagEcod3	#4 cassette encode 3	
	4	#4MagEcod4	#4 cassette encode 4	
	5	GND	#4cassette encode GND	
J17	1	#3MagEcod1	#3 cassette encode 1	BA17
	2	#3MagEcod2	#3 cassette encode 2	
	3	#3MagEcod3	#3 cassette encode 3	
	4	#3MagEcod4	#3 cassette encode 4	
	5	GND	#3 cassette encode GND	
J18	1	#2MagEcod1	#2 cassette encode 1	BA18
	2	#2MagEcod2	#2 cassette encode 2	
	3	#2MagEcod3	#2 cassette encode 3	
	4	#2MagEcod4	#2 cassette encode 4	
	5	GND	#2 cassette encode GND	
J19	1	#1MagEcod1	#1 cassette encode 1	BA19
	2	#1MagEcod2	#1 cassette encode 2	
	3	#1MagEcod3	#1 cassette encode 3	
	4	#1MagEcod4	#1 cassette encode 4	
	5	GND	#1 cassette encode GND	
J20	1	GND	#4 Cassette Sensor GND	BA20
	2	#4MagSensor 1	#4 Cassette Sensor Signal 1	
	3	#4MagSensor 2	#4 Cassette Sensor Signal 2	

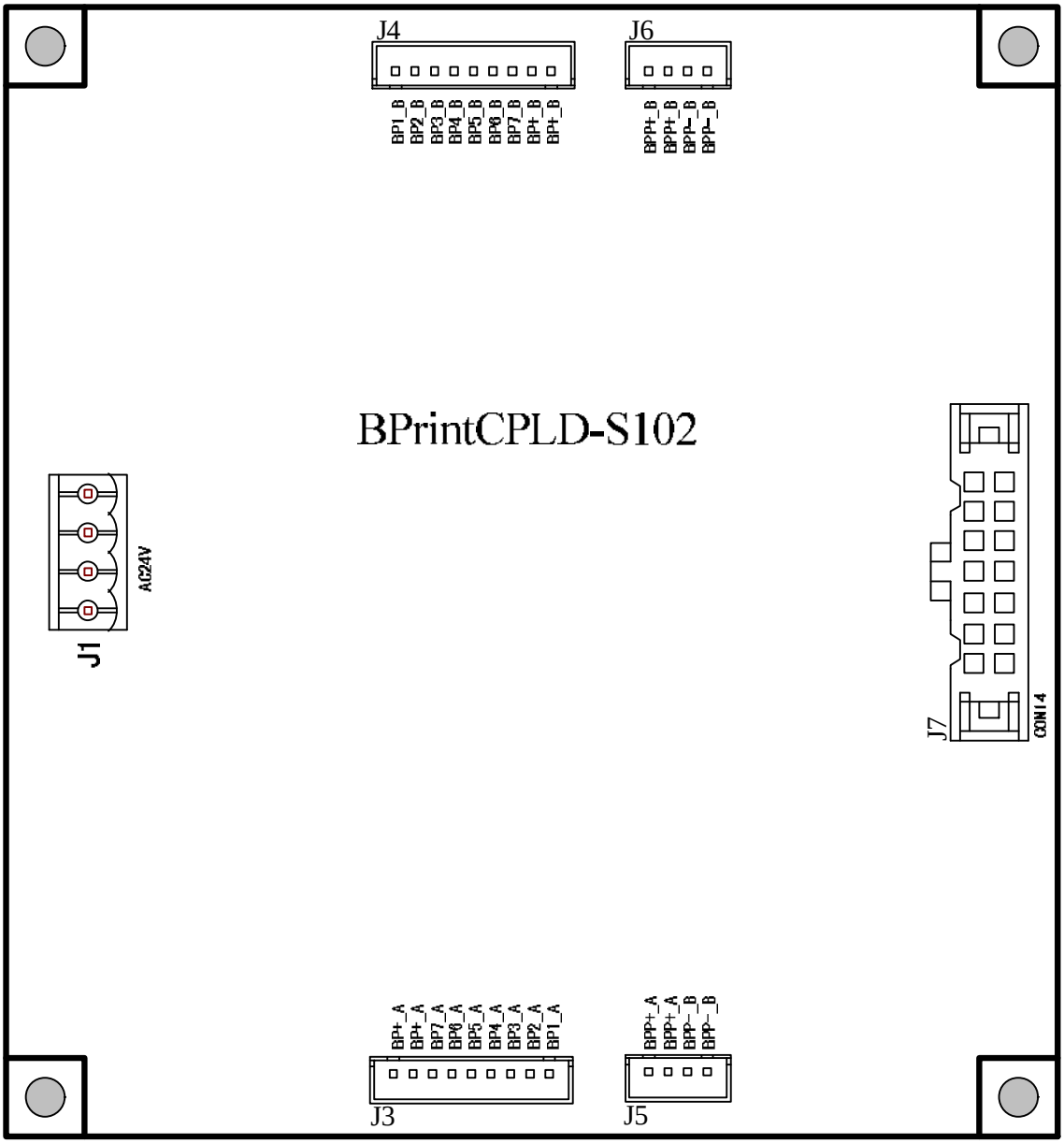
Socket Code	SN	Wire Definition	Description	Wire No.
	4	+5V	#4 Cassette Sensor Power Supply	
J21	1	GND	#3 Cassette Sensor GND	BA21
	2	#3MagSensor 1	#3 Cassette Sensor Signal 1	
	3	#3MagSensor 2	#3 Cassette Sensor Signal 2	
	4	+5V	#3 Cassette Sensor Power Supply	
J22	1	GND	#2 Cassette Sensor GND	BA22
	2	#2MagSensor 1	#2 Cassette Sensor Signal 1	
	3	#2MagSensor 2	#2 Cassette Sensor Signal 2	
	4	+5V	#2 Cassette Sensor Power Supply	
J23	1	GND	#1 Cassette Sensor GND	BA23
	2	#1MagSensor 1	#1 Cassette Sensor Signal 1	
	3	#1MagSensor 2	#1 Cassette Sensor Signal 2	
	4	+5V	#1 Cassette Sensor Power Supply	
J24	1	GND	Cutter Sensor GND	BA24
	2	CutSensor1	Cutter Sensor Signal 1	
	3	CutSensor2	Cutter Sensor Signal 2	
	4	+5V	Cutter Sensor Power Supply	
J25	1	GND	Mask Sensor GND	BA25
	2	MaskSensor1	Platform Mask Sensor 1	
	3	MaskSensor2	Platform Mask Sensor 2	
	4	+5V	Mask Sensor Power supply	
J26	1	GND	#1 Door Switch GND	BA26

Socket Code	SN	Wire Definition	Description	Wire No.
	2	DoorLock1	#1 Door Switch Signal	
	3	GND	#2 Door Switch GND	
	4	DoorLock2	#2 Door Switch Signal	
J27	1	GND	STANDBY	
	2	DividSensor1		
	3	DividSensor2		
	4	+5V		
J28	1	AC28V1	AC28V power supply	BA280 1
	2	AC28V2	AC28V power supply	BA280 2
	3	CUTA	Phase A of Band mask motor A	BA280 3
	4	CUTB	Phase A of Band mask motor A	BA280 4
J29	1	+5V	Power Supply	BA29
	2	GND	GND	
	3	FDLCLK	Paper Advance Clock Signal	
	4	FDDIR	Paper Advance Clock Signal	
	5	FDLOCK	Paper Advance Lock Signal	
J30	1	+5V	Power Supply	BA30
	2	GND	GND	
	3	PFCLK	Platform Motor Clock Signal	
	4	GND	Platform Motor Direction Signal	
	5	PFLOCK	Platform Motor Lock Signal	
J31	1	+5V	Power Supply	BA31
	2	GND	GND	
	3	M1CLK	#1 Cassette motor Clock Signal	

Socket Code	SN	Wire Definition	Description	Wire No.
	4	M1DIR	#1 Cassette motor Direction Signal	
	5	M1LOCK	#1 Cassette motor Lock Signal	
J32	1	+5V	Power Supply	BA32
	2	GND	GND	
	3	M2CLK	#2 Cassette motor Clock Signal	
	4	M2DIR	#2 Cassette motor Direction Signal	
	5	M2LOCK	#2 Cassette motor Lock Signal	
J33	1	+5V	Power Supply	BA33
	2	GND	GND	
	3	M3CLK	#3 Cassette motor Clock Signal	
	4	M3DIR	#3 Cassette motor Direction Signal	
	5	M3LOCK	#3 Cassette motor Lock Signal	
J34	1	+5V	Power Supply	
	2	+5V	Power Supply	
	3	DPRINT1	Backprinter Output Signal 1	
	4	DPRINT2	Backprinter Output Signal 2	
	5	DPRINT3	Backprinter Output Signal 3	
	6	DPRINT4	Backprinter Output Signal 4	
	7	DPRINT5	Backprinter Output Signal 5	
	8	DPRINT6	Backprinter Output Signal 6	
	9	DPRINT7	Backprinter Output Signal 7	
	10	DPRINT8	Backprinter Output Signal 8	
	11	BPSEL1	Backprinter Control Choice A	
	12	BPSEL2	Backprinter Control Choice B	
	13	GND	GND	
	14	GND		

Socket Code	SN	Wire Definition	Description	Wire No.
J35	1	+5V	Power Supply	BA35
	2	GND	GND	
	3	M4CLK	#4 Cassette motor Clock Signal	
	4	M4DIR	#4 Cassette motor Direction Signal	
	5	M4LOCK	#4 Cassette motor Lock Signal	
J36	1	+5V	Power Supply	BA36
	2	GND	GND	
	3	CUTCLK	Cutter Motor Clock Signal	
	4	CUTDIR	Cutter Motor Direction Signal	
	5	CUTLOCK	Cutter Motor Lock Signal	
J37	1	+5V	Power Supply	BA37
	2	GND	GND	
	3	ENTRYCLK	Raiser Motor1 Clock Signal	
	4	GND	GND	
	5	ENTRYLOCK	Raiser Motor1 Lock Signal	
J38	1	+5V	Power Supply	BA38
	2	GND	GND	
	3	EXITCLK	Raiser Motor2 Clock Signal	
	4	GND	GND	
	5	EXITLOCK	Raiser Motor2 Lock Signal	
J39	1	+5V	STANDBY	
	2	GND		
	3	DIVIDCLK		
	4	DIVIDDIR		
	5	DIVIDLOCK		

4.4 BprintCPLD-S102

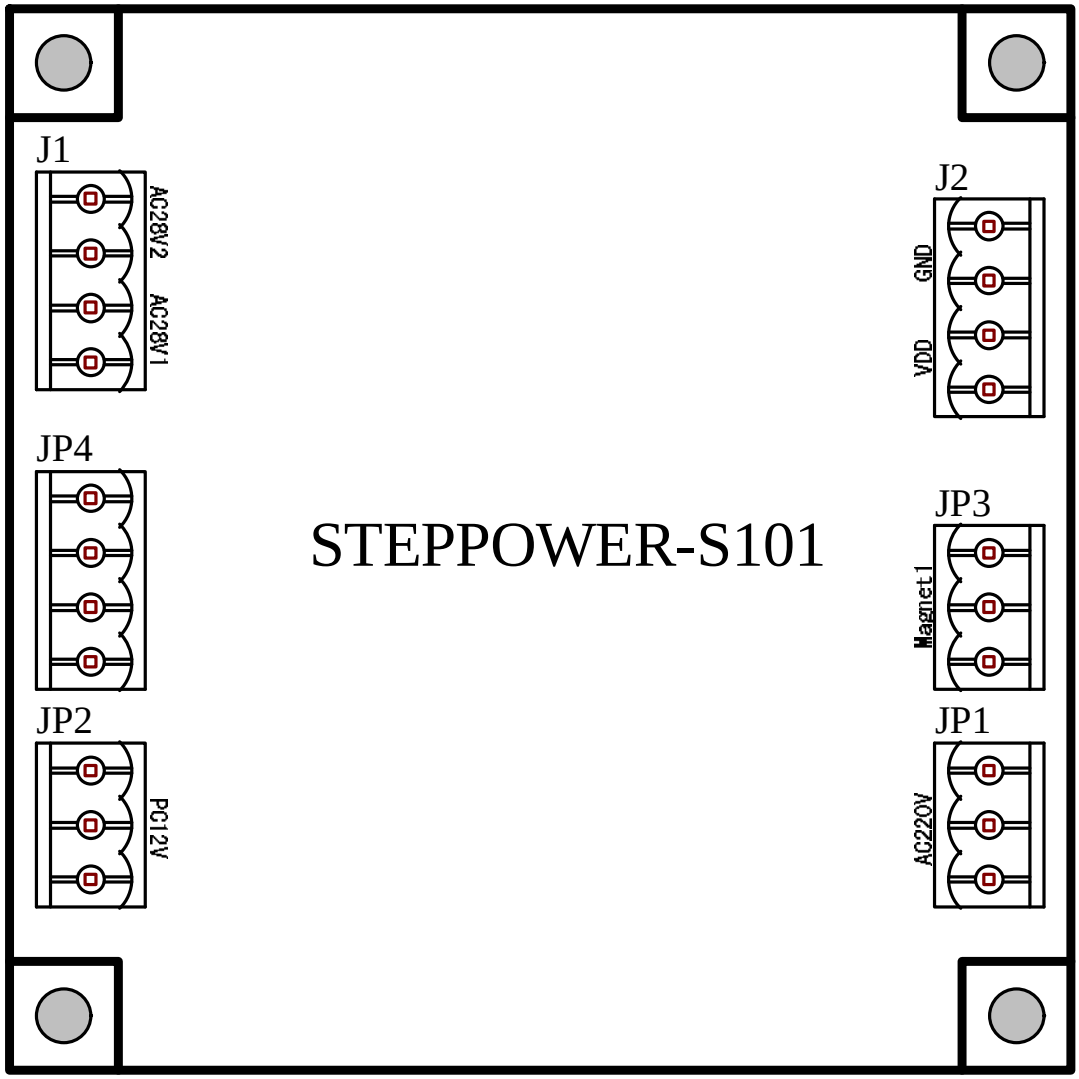


4.4.1 Disposition and description

Socket Code	SN	Wire Definition	Description	Wire No.
J1	1	AC24V1	Power supply	K3
	2			
	3	AC24V2	Power supply	K4
	4			
J3	1	BP+_A	Power supply for pins of Backprint A	BYJ 3
	2	BP+_A		
	3	BP7_A	Control signal for pin 7 of Backprint A	
	4	BP6_A	Control signal for pin 6 of Backprint A	
	5	BP5_A	Control signal for pin 5 of Backprint A	
	6	BP4_A	Control signal for pin 4 of Backprint A	
	7	BP3_A	Control signal for pin 3 of Backprint A	
	8	BP2_A	Control signal for pin 2 of Backprint A	
	9	BP1_A	Control signal for pin 1 of Backprint A	
J4	1	BP+_B	Standy	
	2	BP+_B		
	3	BP7_B		
	4	BP6_B		
	5	BP5_B		
	6	BP4_B		
	7	BP3_B		
	8	BP2_B		
	9	BP1_B		
J5	1	BPP+_A	Motor + of Backprint A	BYJ 5
	2	BPP+_A		

Socket Code	SN	Wire Definition	Description	Wire No.
	3	BPP-_A	Motor – of Backprint A	
	4	BPP-_A		
J6	1	BPP+_B	Standy	
	2	BPP+_B		
	3	BPP-_B		
	4	BPP-_B		
J7	1	+5V	DC5V power supply	
	2	+5V		
	3	IN0	Input signal 1 of Backprinit	
	4	IN1	Input signal 2 of Backprinit	
	5	IN2	Input signal 3 of Backprinit	
	6	IN3	Input signal 4 of Backprinit	
	7	IN4	Input signal 5 of Backprinit	
	8	IN5	Input signal 6 of Backprinit	
	9	IN6	Input signal 7 of Backprinit	
	10	IN7	Input signal 8 of Backprinit	
	11	A_SEL	Backprint_Select A	
	12	B_SEL	Backprint_Select B	
	13	GND	GND	
	14	GND		

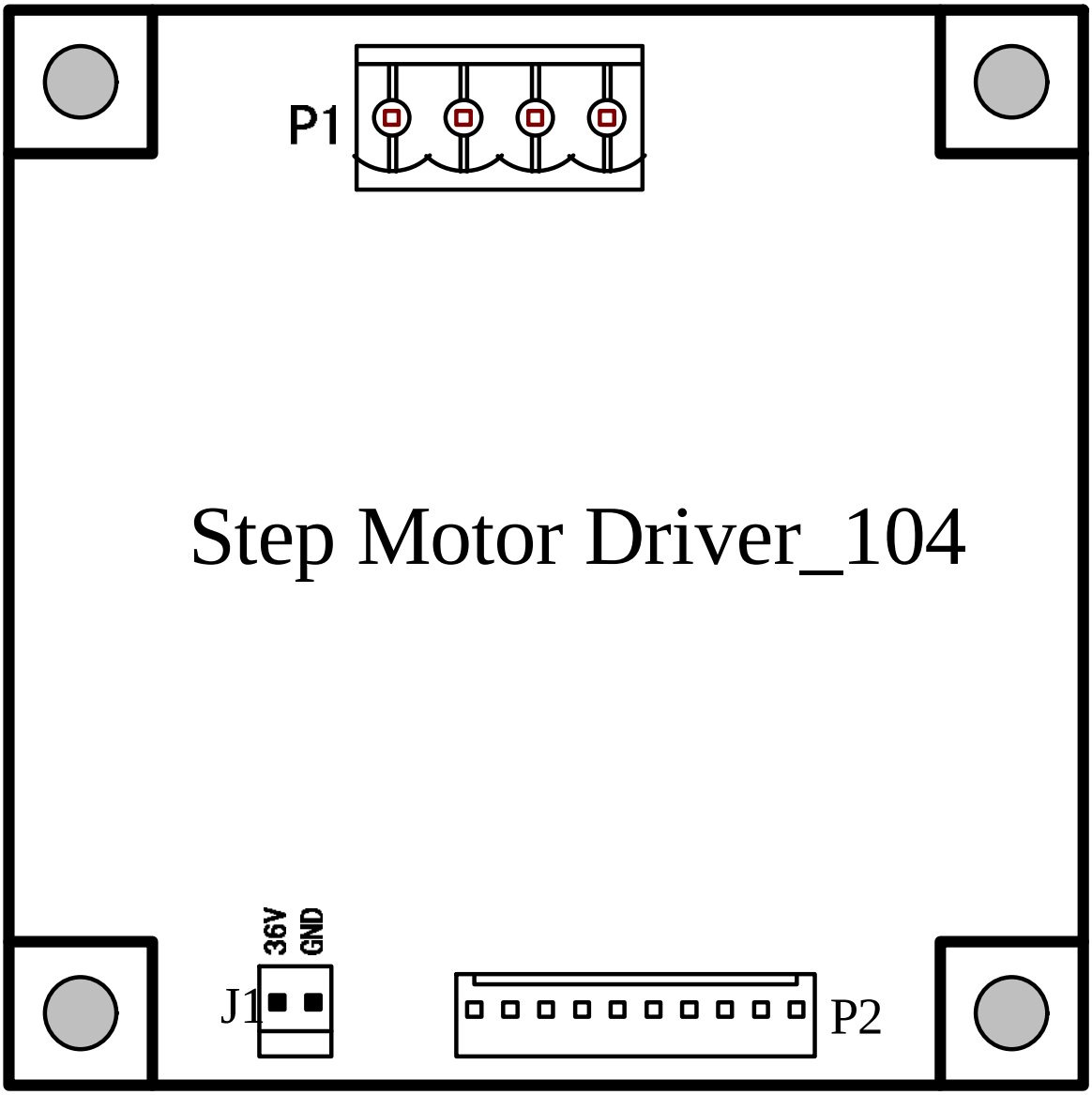
4.5 STEPPOWER-S101



4.5.1 Disposition and description

Socket Code	SN	Wire Definition	Description	Wire No.
J1	1	AC28V1	Power Supply output	K1
	2			
	3	AC28V2	Power Supply output	K2
	4			
J2	1	GND	GND	GND
	2		GND	GND
	3	VDD	Power Supply	VCC
	4		Power Supply	VCC
JP1	1	AC220V1	220V INPUT	L1
	2			
	3	AC220V2	220V OUTPUT	
JP2	1	GND	PC GND	GND
	2			
	3	PC+12V	PC Power Supply	PC12V
JP3	1	+24V	STANDBY	
	2	Magnet1		
	3	GND		
JP4	1	GND	STANDBY	
	2	+12V		
	3			
	4			

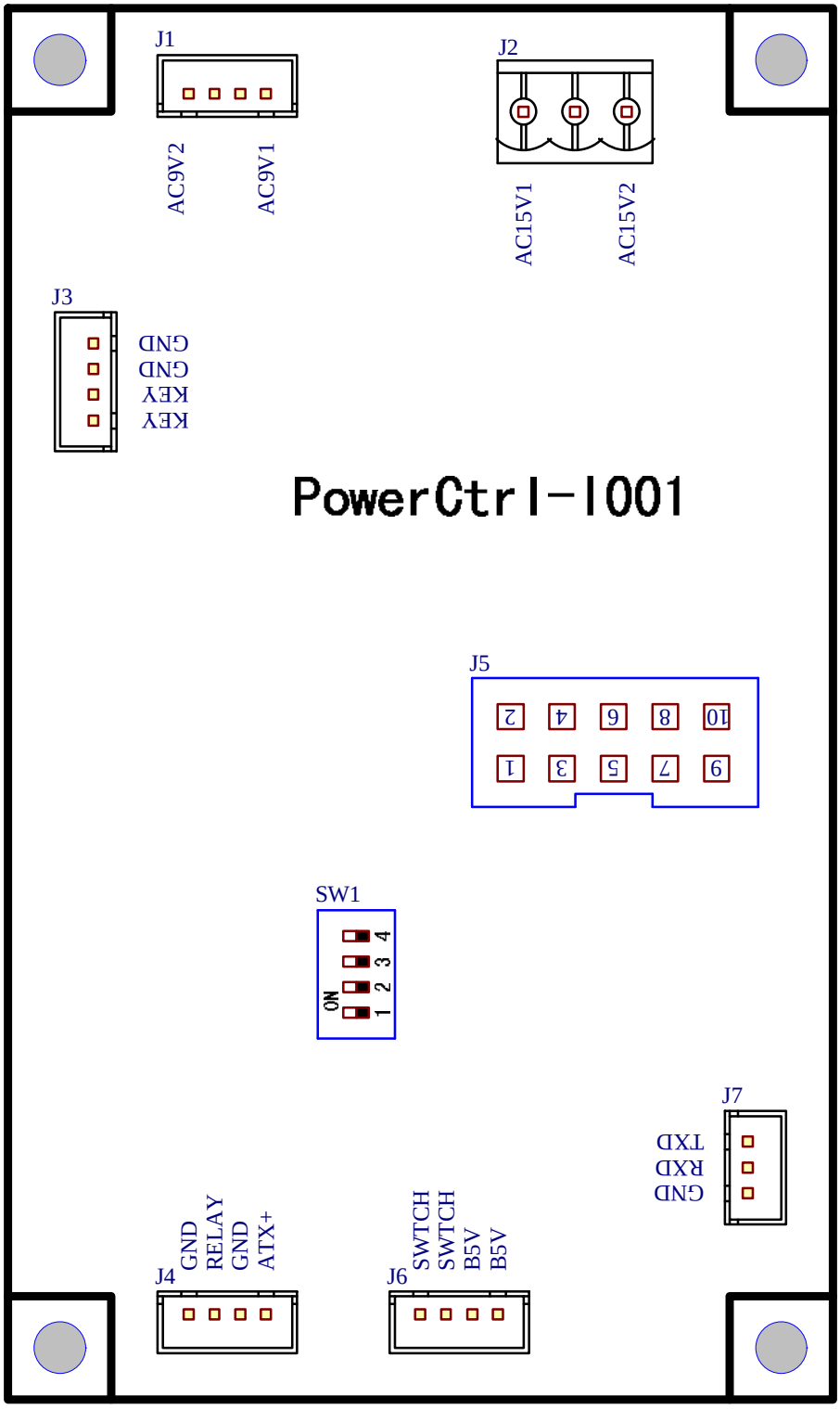
4.6 Step Motor Driver_104



4.6.1 Disposition and description

Socket Code	SN	Wire Definition	Description	Wire No.
P1	1	A	Motor Phase A	
	2	B	Motor Phase B	
	3	C	Motor Phase C	
	4	D	Motor Phase D	
J1	1	GND	GND	GND
	2	VDD	Power Supply 36V	VDD
P2	1	VDD	Standby	
	2	VDD		
	3	GND	Standby	
	4	GND		
	5	VCC	Power Supply 3.3V	VCC
	6	GND	GND	GND
	7	CLK	Clock Signal	CLK
	8	DIR	Direction Signal	DIR
	9	P.D	Lock Signal	P.D
	10	H/F	Standby	

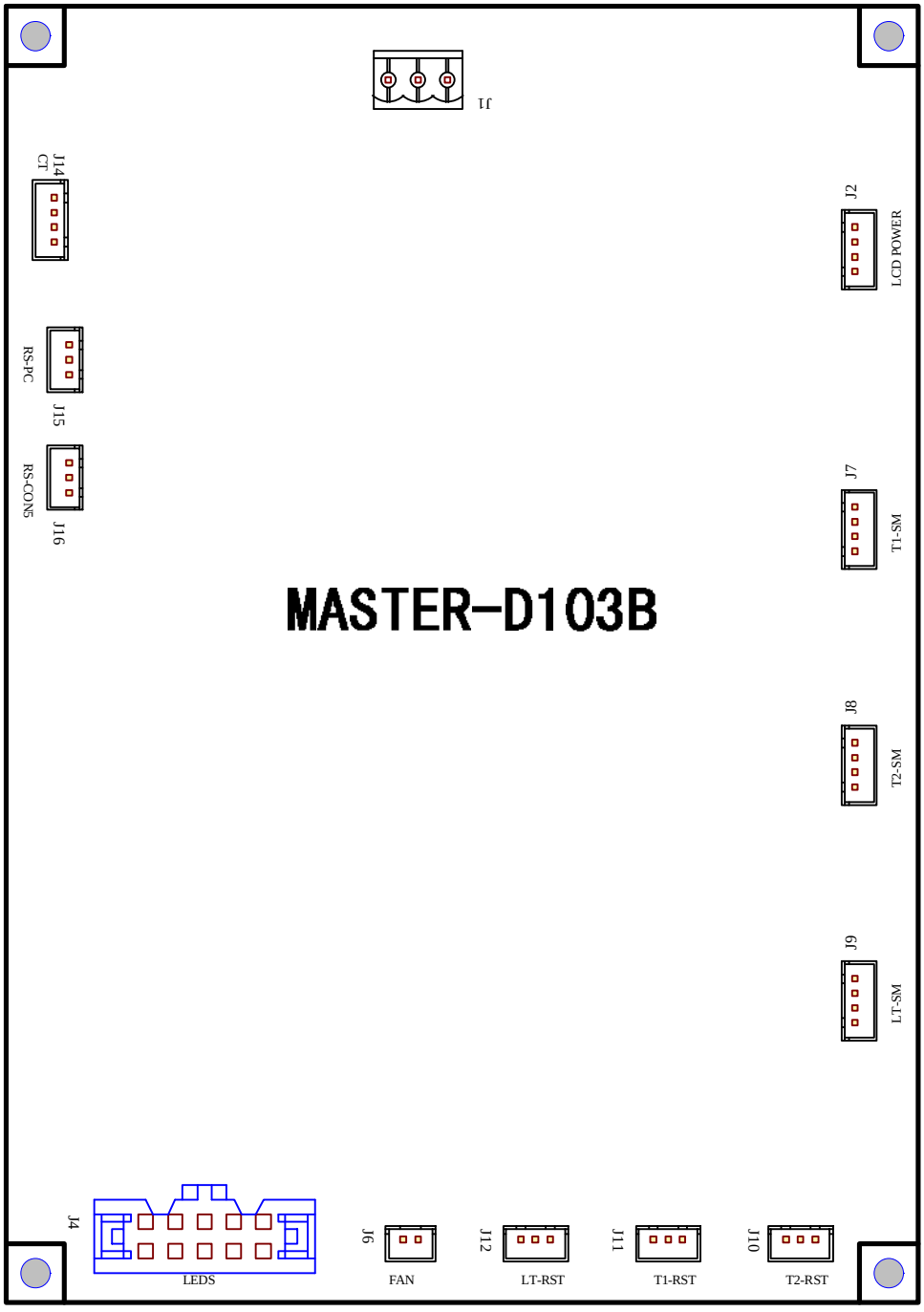
4.7 PowerCtrl-I001 PCB



4.7.1 Desposition and Description

Socket Code	SN	Wire Definition	Description	Wire No.
J1	1	AC9V2	Power supply	D0101
	2	AC9V2		
	3	AC9V1		D0104
	4	AC9V1		
J2	1	AC15V1	Power supply	D0201
	2			
	3	AC15V2		D0203
J3	1	KEY	Boot-strap switch	D3
	2	KEY		
	3	GND		
	4	GND		
J4	1	ATX+	Standby	
	2	GND		
	3	RELAY+	AC contactor control signal +	D4
	4	GND	AC contactor control signal GND	
J6	1	B5V	Standby	
	2	B5V		
	3	SWTCH		
	4	SWTCH		
J7	1	TXD	Serial communication line	D7
	2	RXD		
	3	GND		

4.8 MASTER-D103B PCB

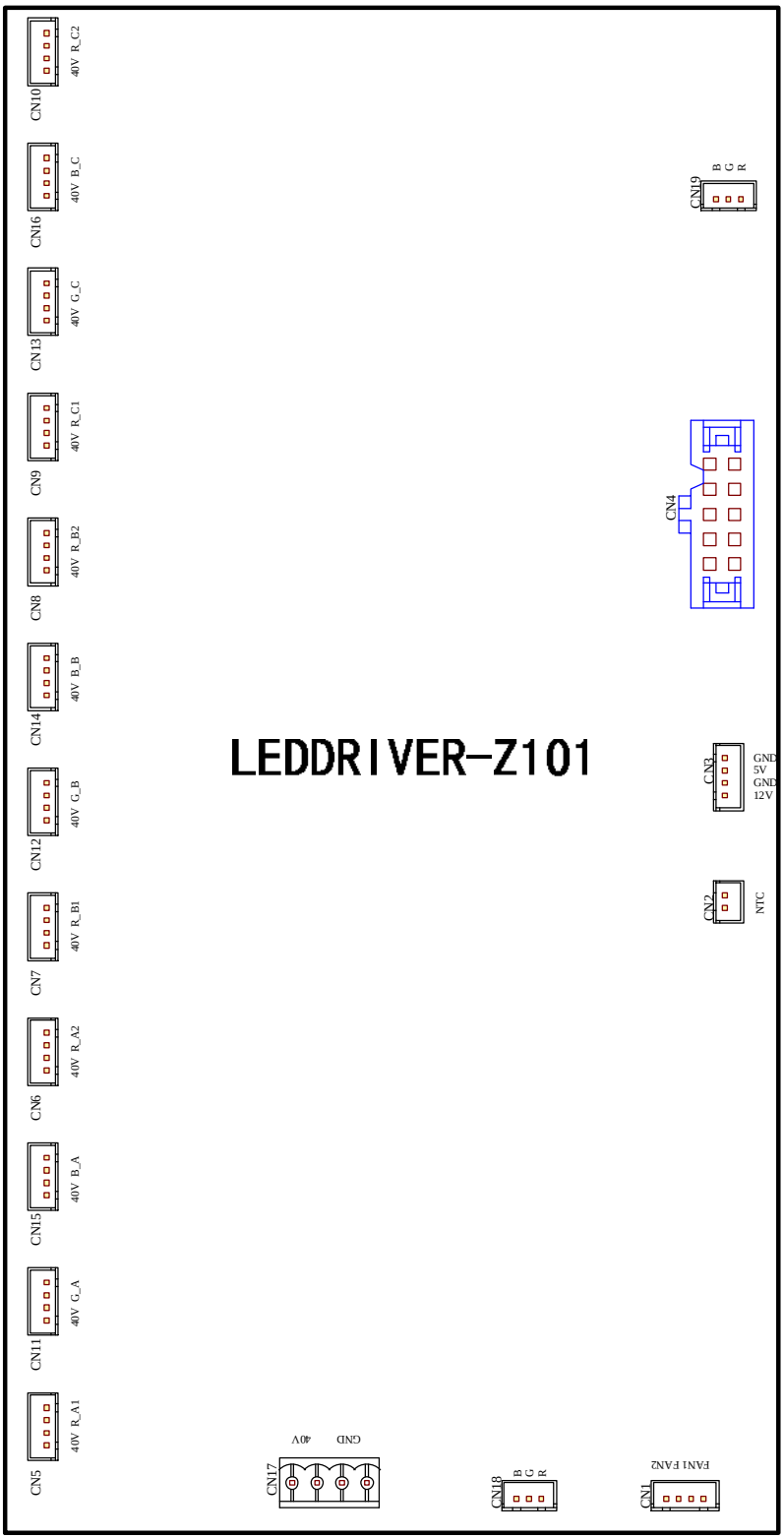


4.1 Desposition and Description

Socket Code	SN	Wire Definition	Description	Wire No.
J1	1	AC24V1	Power supply	K5
	2			
	3	AC24V2		K6
J2	1	GND	Standby	
	2	5V		
	3	GND		
	4	20V		
J4	1	RED	Standby	
	2	LEDS VCC		
	3	GND		
	4	TERM		
	5	GREEN		
	6	BLUE		
	7			
	8	VCC		
	9	GND		
	10	LS IMP1		
J6	1	OUT FAN	Standby	
	2	VCC		
J7	1	T1 A	Standby	
	2	T1 B		
	3	T1 NA		
	4	T1 NB		
J8	1	T2 A	Standby	
	2	T2 B		
	3	T2 NA		

Socket Code	SN	Wire Definition	Description	Wire No.
	4	T2 NB		
J9	1	LT A	Lens turnplate motor drive	F9
	2	LT B		
	3	LT NA		
	4	LT NB		
J10	1	GND	Standby	
	2	T2 RST		
	3	5V		
J11	1	GND	Standby	
	2	T1 RST		
	3	5V		
J12	1	GND	Lens turnplate sensor GND	F12
	2	LT RST	Lens turnplate sensor signal	
	3	5V	Lens turnplate sensor power supply	
J13	1	GND	Standby	
	2	NC RST		
	3	5V		
J14	1		Turnplate electromaganet	F14
	2			
	3			
	4			
J15	1		Serial communication	F15 (PCF15)
	2			
	3			
J16	1		Serial communication	F16
	2			
	3			

4.9 LEDDRIVER-Z101 PCB



4.9.1 Desposition and Description

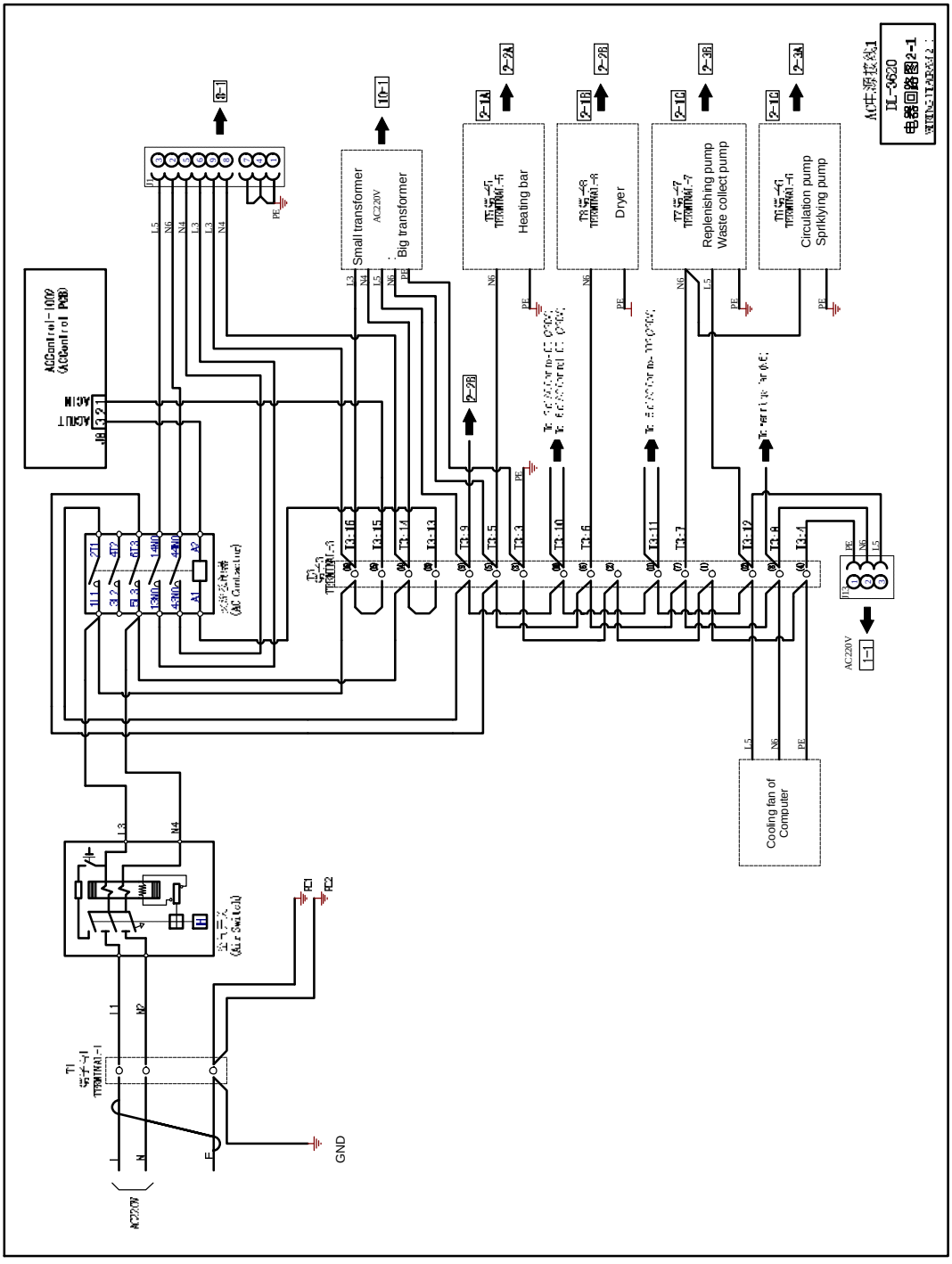
Socket Code	SN	Wire Definition	Description	Wire No.
CN1	1	FAN2	Radiactor fan 2	
	2			
	3	FAN1	Radiactor fan 1	
	4			
CN2	1	NTC	Standby	
	2			
CN3	1	12V	Power supply 12V	
	2	GND		
	3	5V	Power supply 5V	
	4	GND1		
CN4	1			
	2			
	3	R	Red signal	
	4	GND1	GND	
	5	G	Green signal	
	6	GND1	GND	
	7	B	Blue signal	
	8	GND1	GND	
	9			
	10			
CN5	1	CON4	Red light control signal 1	
	2			
	3	40V	Red light power supply	
	4			
CN6	1	CON4	Red light control signal 2	

Socket Code	SN	Wire Definition	Description	Wire No.
	2			
	3	40V	Red light power supply	
	4			
CN7	1	CON4	Red light control signal 3	
	2			
	3	40V	Red light power supply	
	4			
CN8	1	CON4	Red light control signal 4	
	2			
	3	40V	Red light power supply	
	4			
CN9	1	CON4	Red light control signal 5	
	2			
	3	40V	Red light power supply	
	4			
CN10	1	CON4	Red light control signal 6	
	2			
	3	40V	Red light power supply	
	4			
CN11	1	CON4	Green light control signal 1	
	2			
	3	40V	Green light power supply	
	4			
CN12	1	CON4	Green light control signal 2	
	2			
	3	40V	Green light power supply	
	4			
CN13	1	CON4	Green light control signal 3	

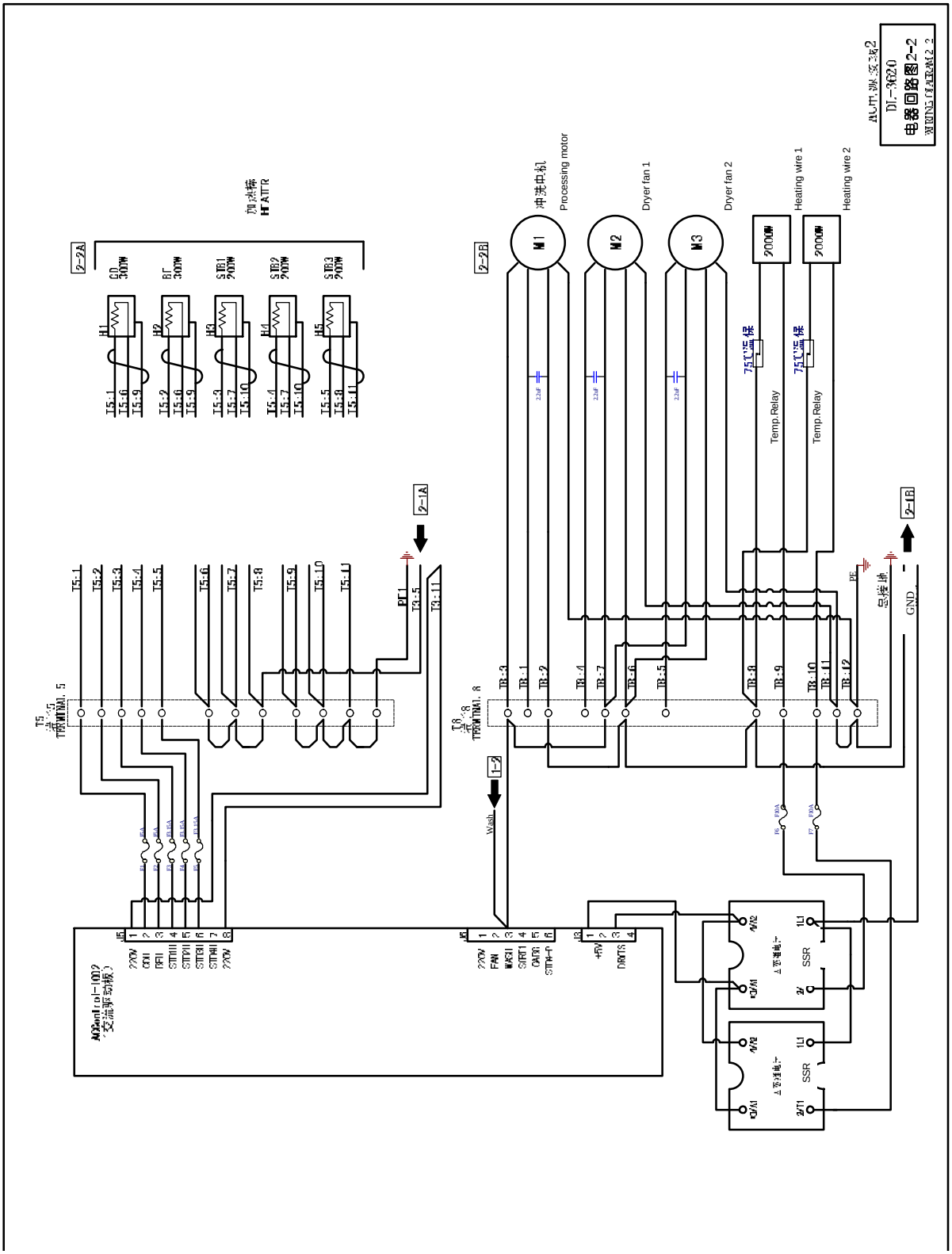
Socket Code	SN	Wire Definition	Description	Wire No.
	2			
	3	40V	Green light power supply	
	4			
CN14	1	CON4	Blue light control signal1	
	2			
	3	40V	Blue light power supply	
	4			
CN15	1	CON4	Blue light control signal2	
	2			
	3	40V	Blue light power supply	
	4			
CN16	1	CON4	Blue light control signal3	
	2			
	3	40V	Blue light power supply	
	4			
CN17	1	GND	Power supply GND	
	2			
	3	40V	Power supply	
	4			
CN18	1	B	Blue light control signal	
	2	G	Green light control signal	
	3	R	Red light control signal	
CN19	1	R	Red light control signal	
	2	G	Green light control signal	
	3	B	Blue light control signal	

Chapter 5 Wiring Diagrams

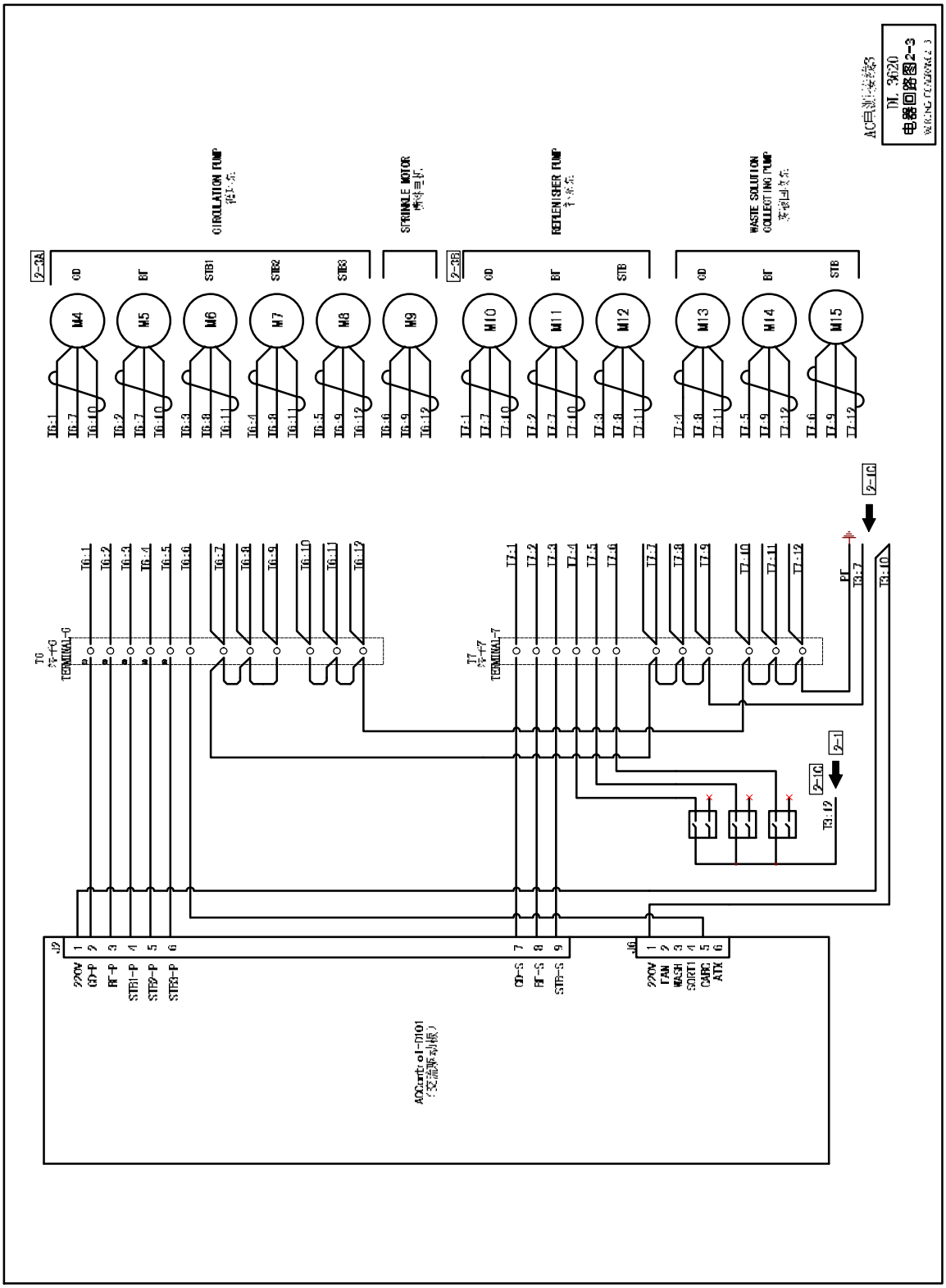
5.1 AC power supply wiring diagram(As Fig.2-1)



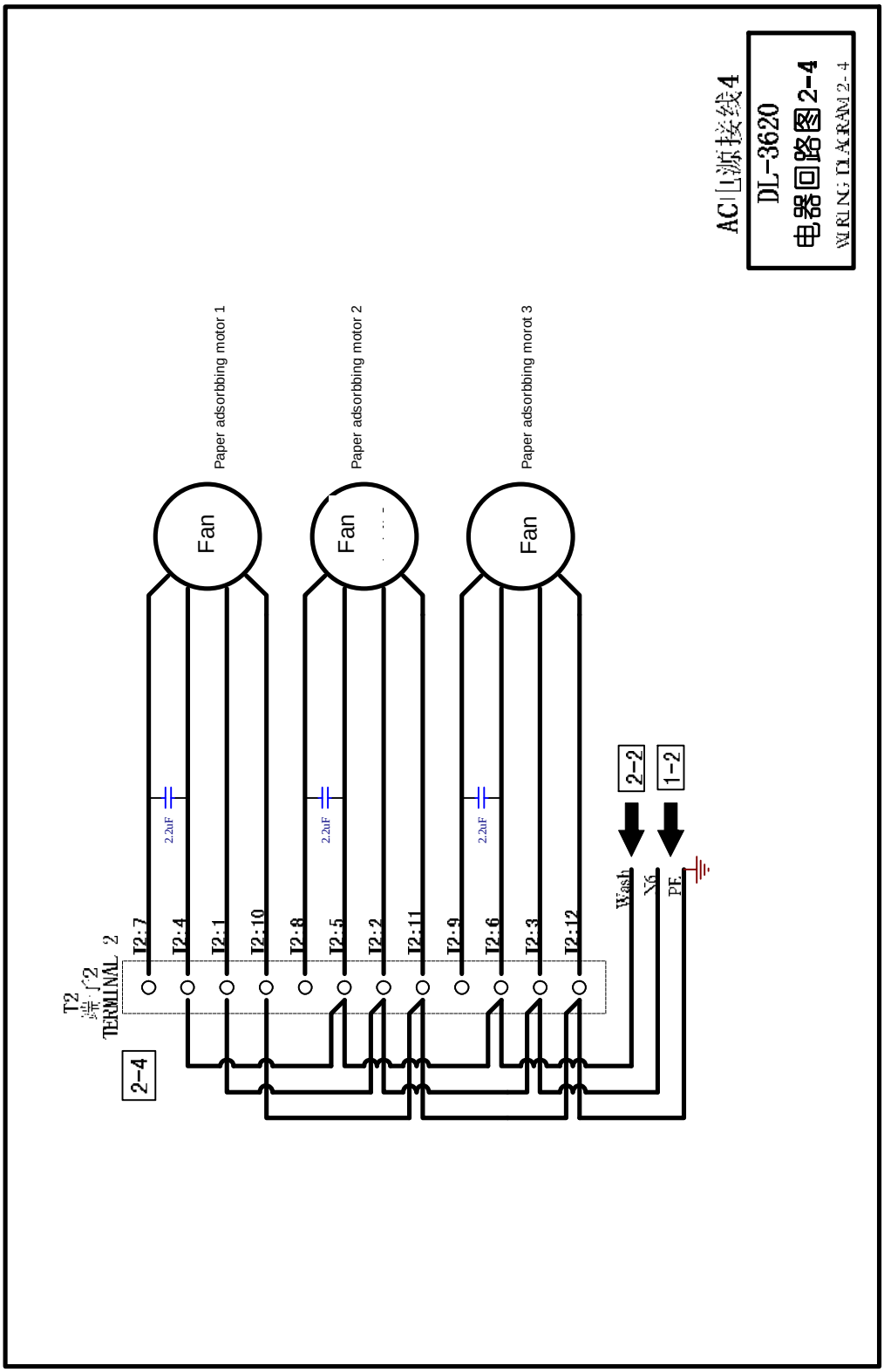
5.2 AC power supply wiring diagram (Fig.2-2)



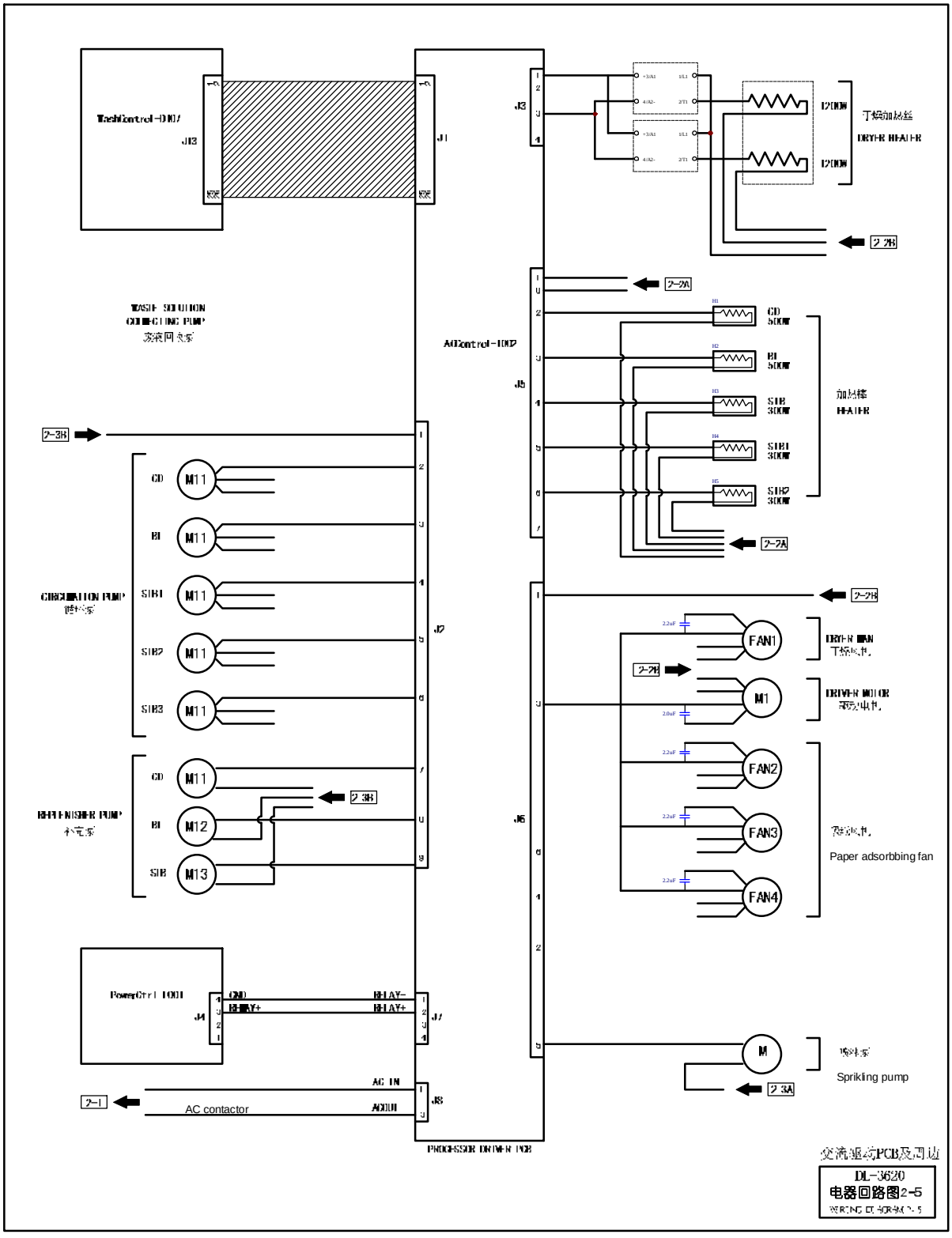
5.3 AC power supply wiring diagram (Fig.2-3)



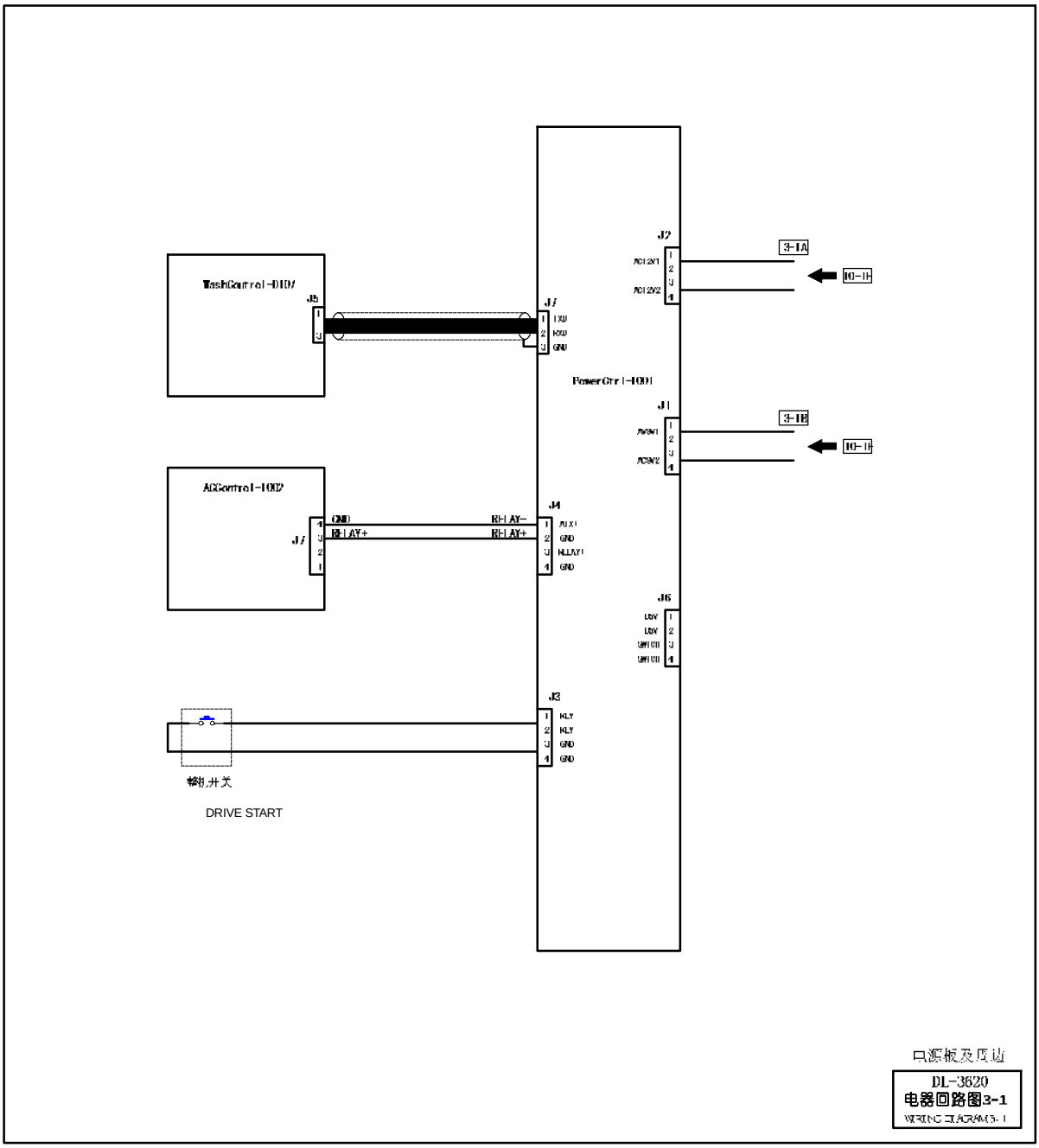
5.4 AC power supply wiring diagram (Fig.2-4)



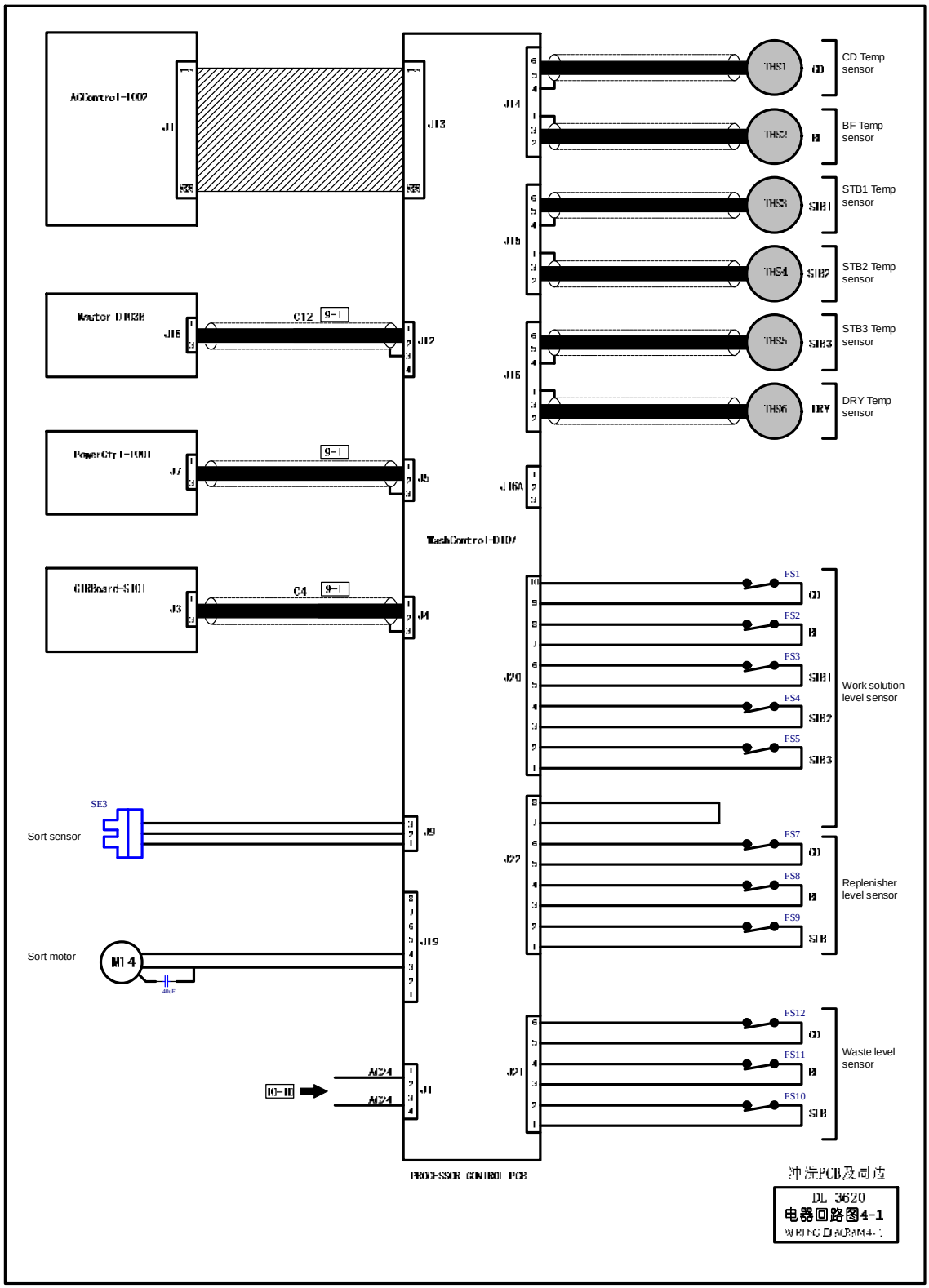
5.5 AC power supply wiring diagram (Fig.2-5)



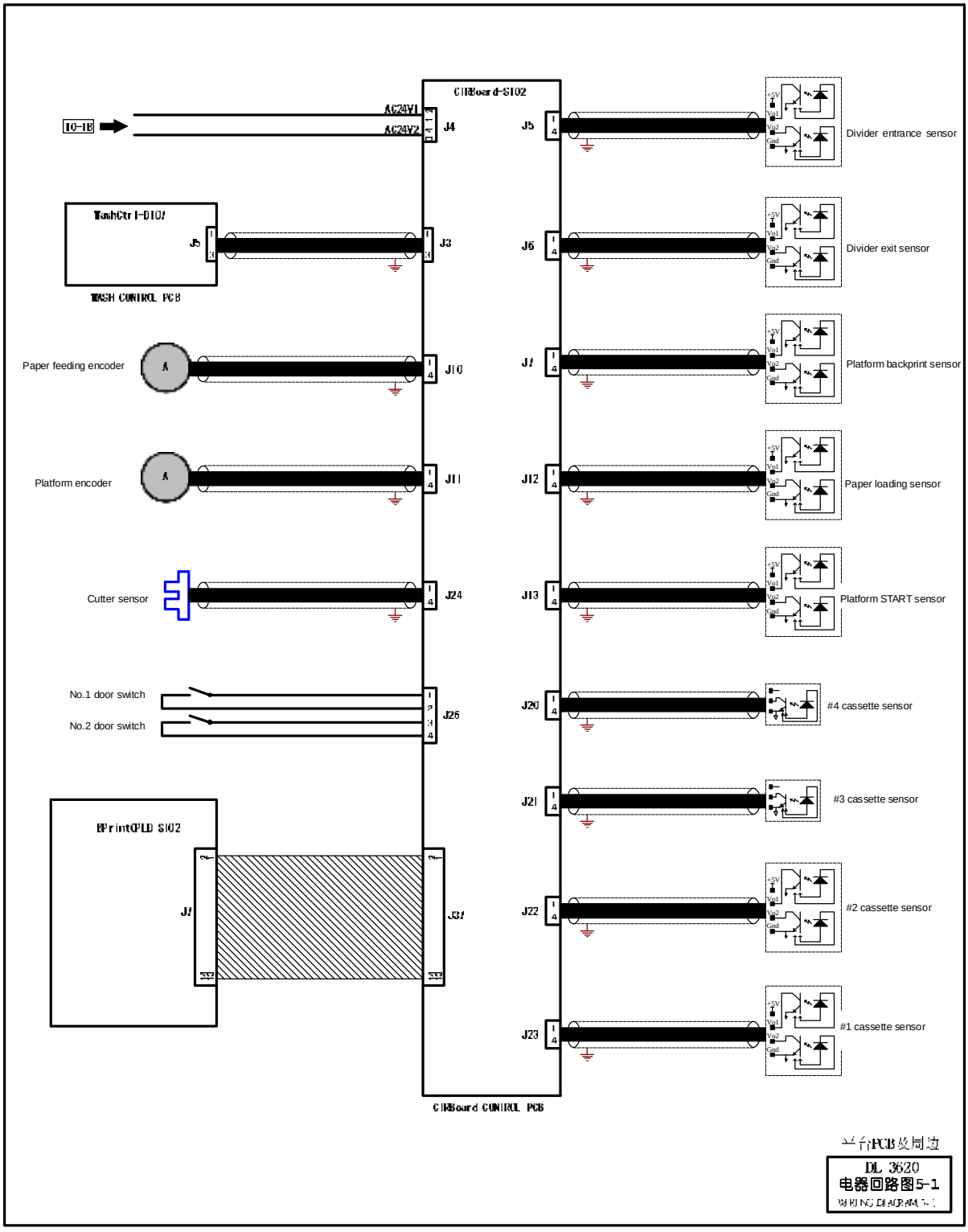
5.6 Power PCB and surrounding(Fig.3-1)



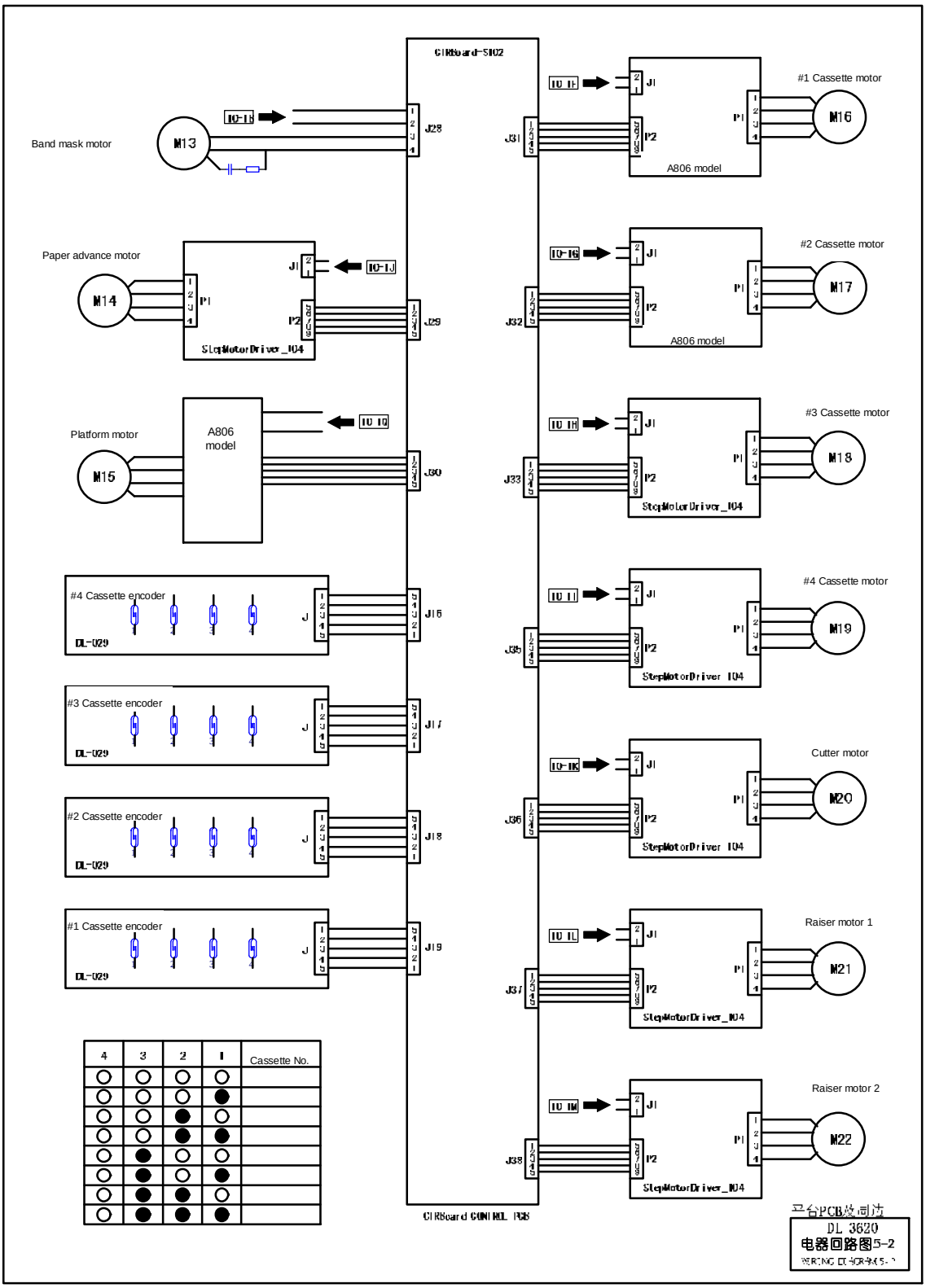
5.7 Washctrl PCB and surrounding(Fig.4-1)



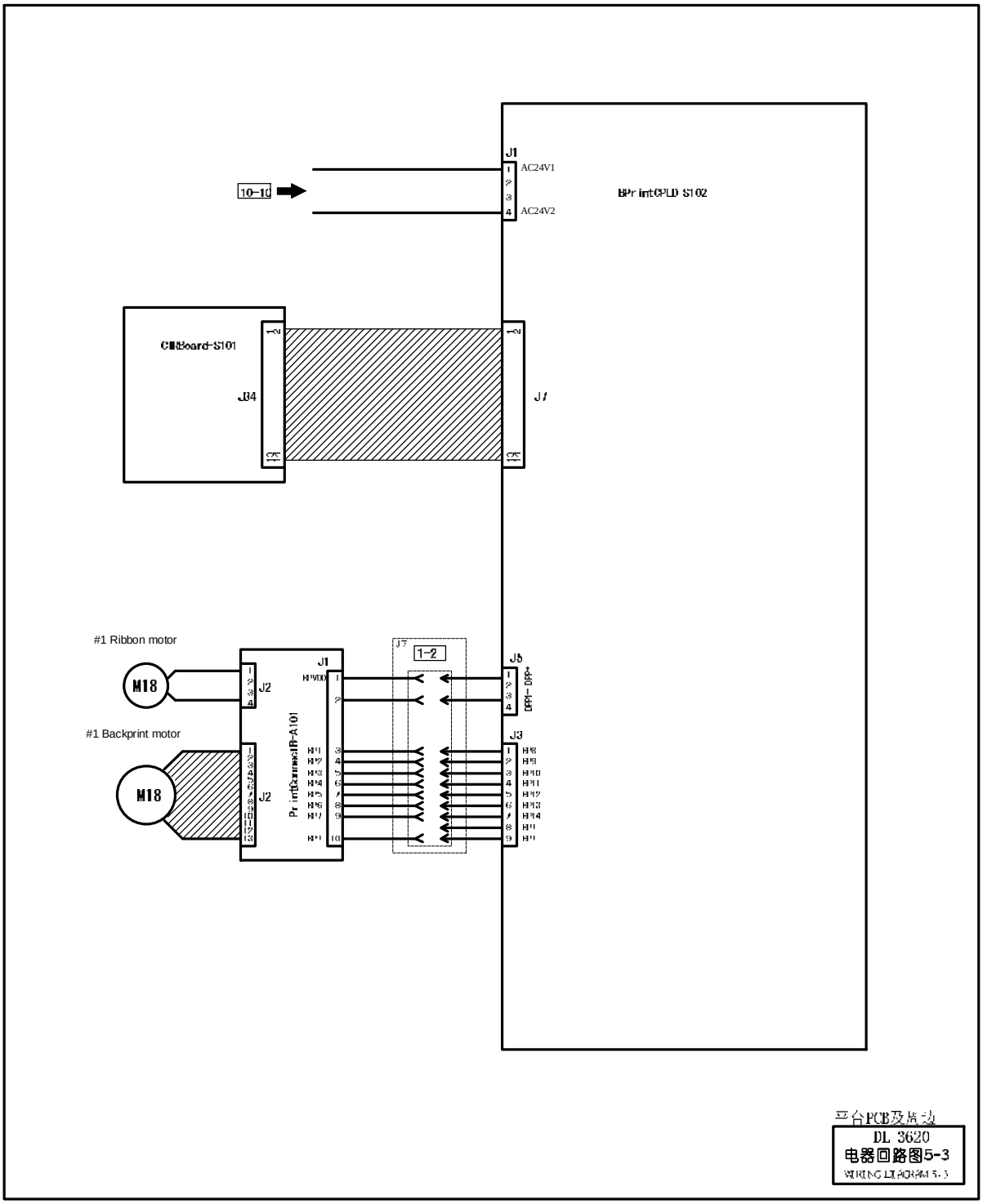
5.8 Platform PCB and surrounding(Fig.5-1)



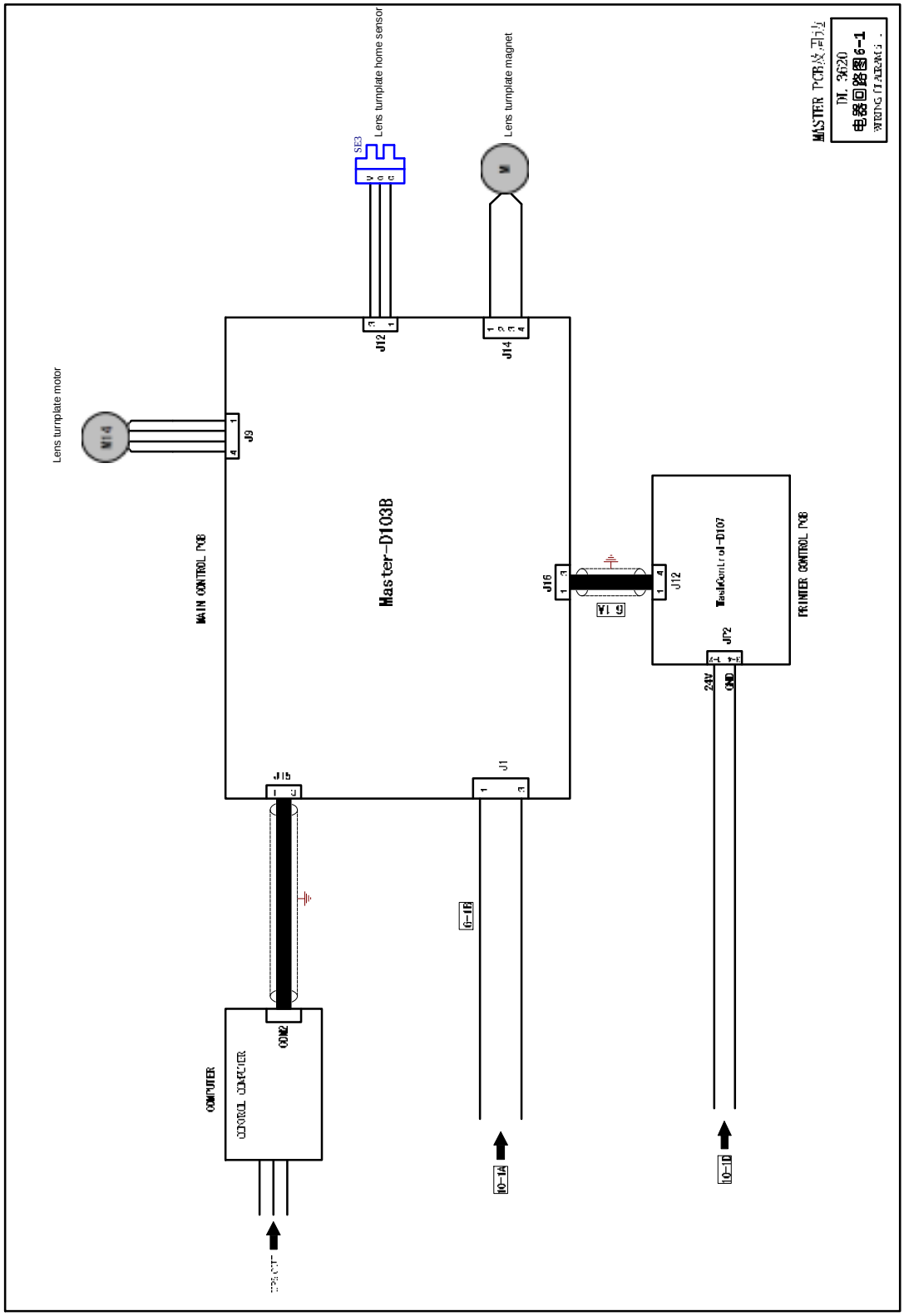
5.9 Platform PCB and surrounding(Fig.5-2)



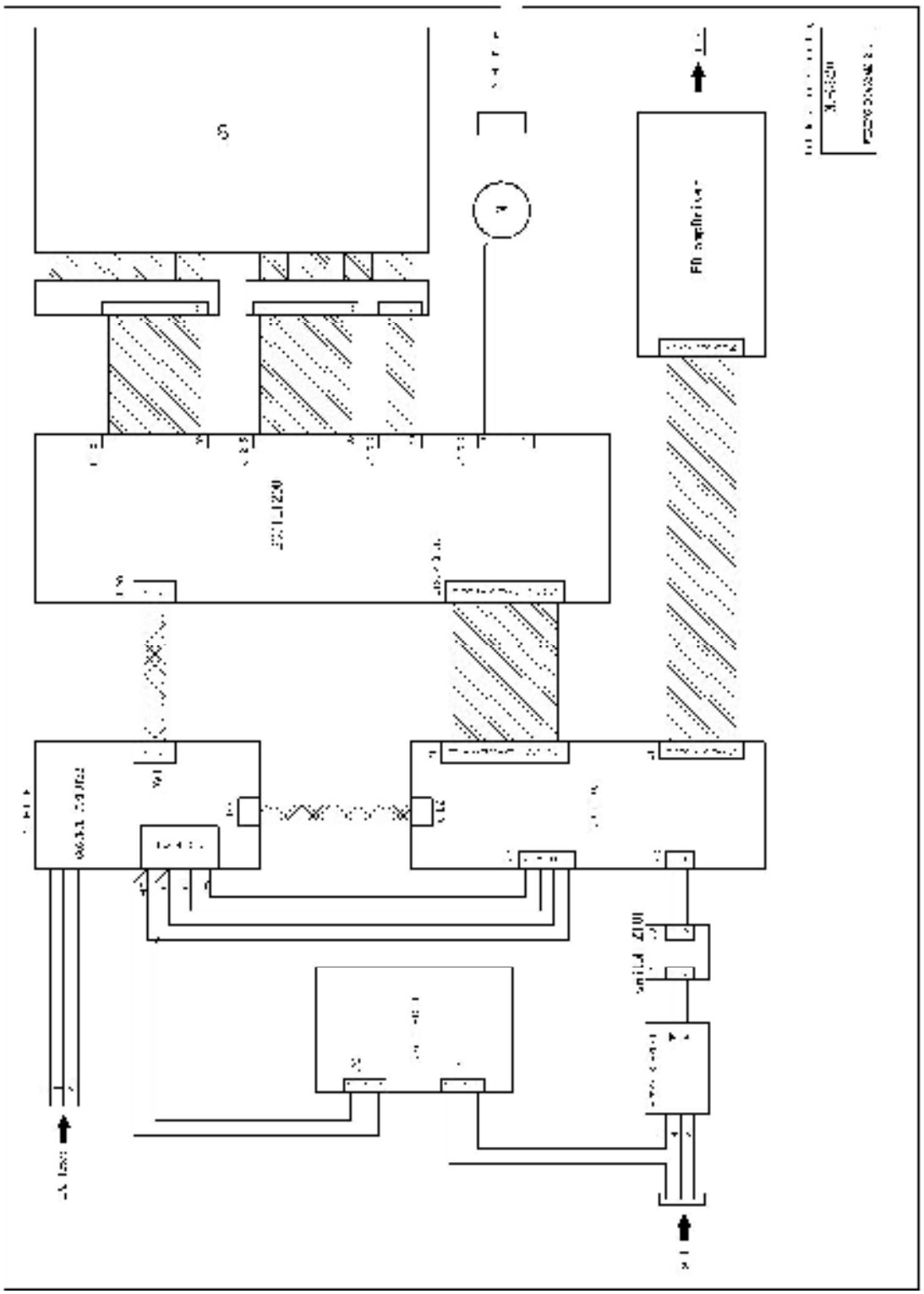
5.10 Platform PCB and surrounding(Fig.5-3)



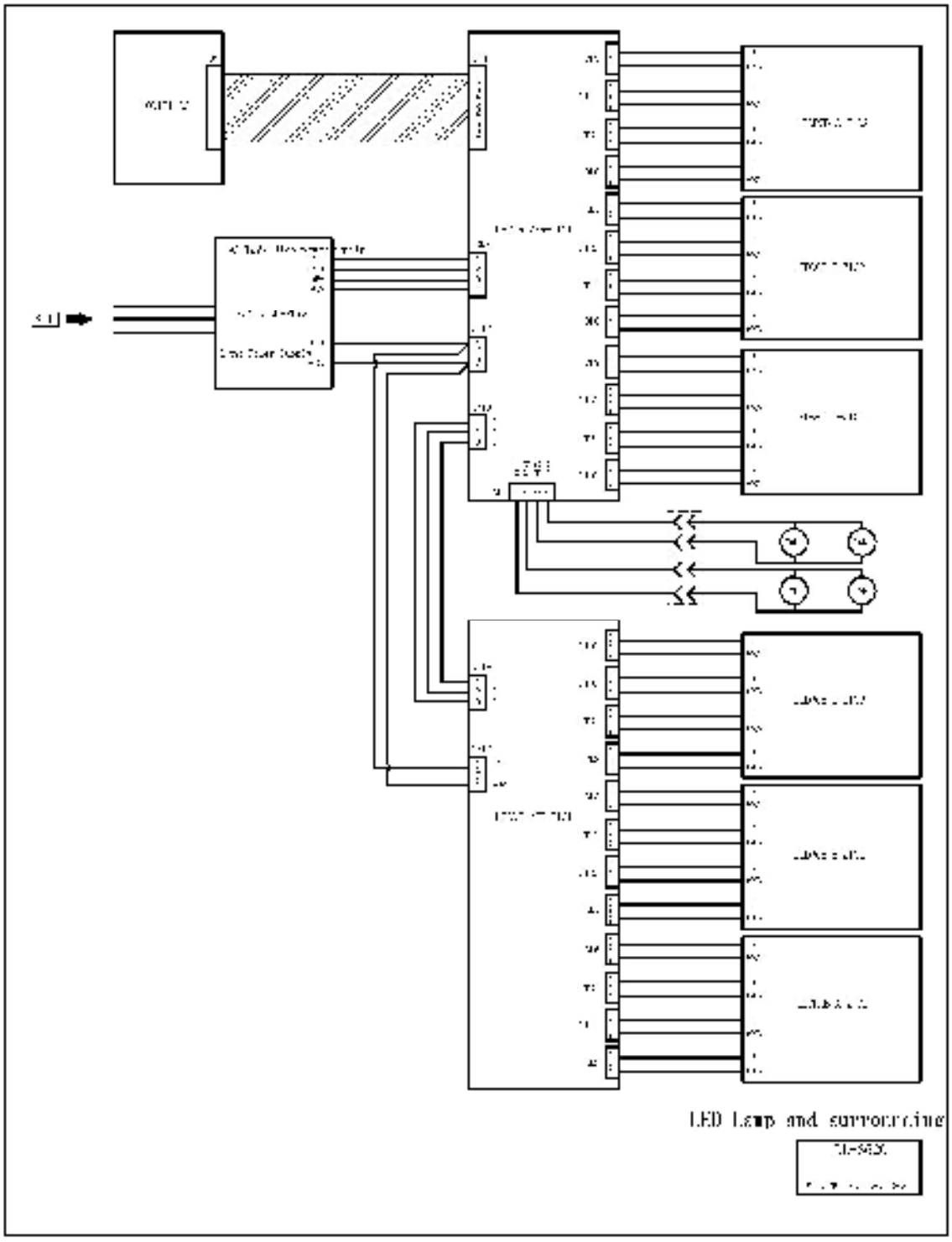
5.11 Master PCB and surroundings (Fig.6-1)



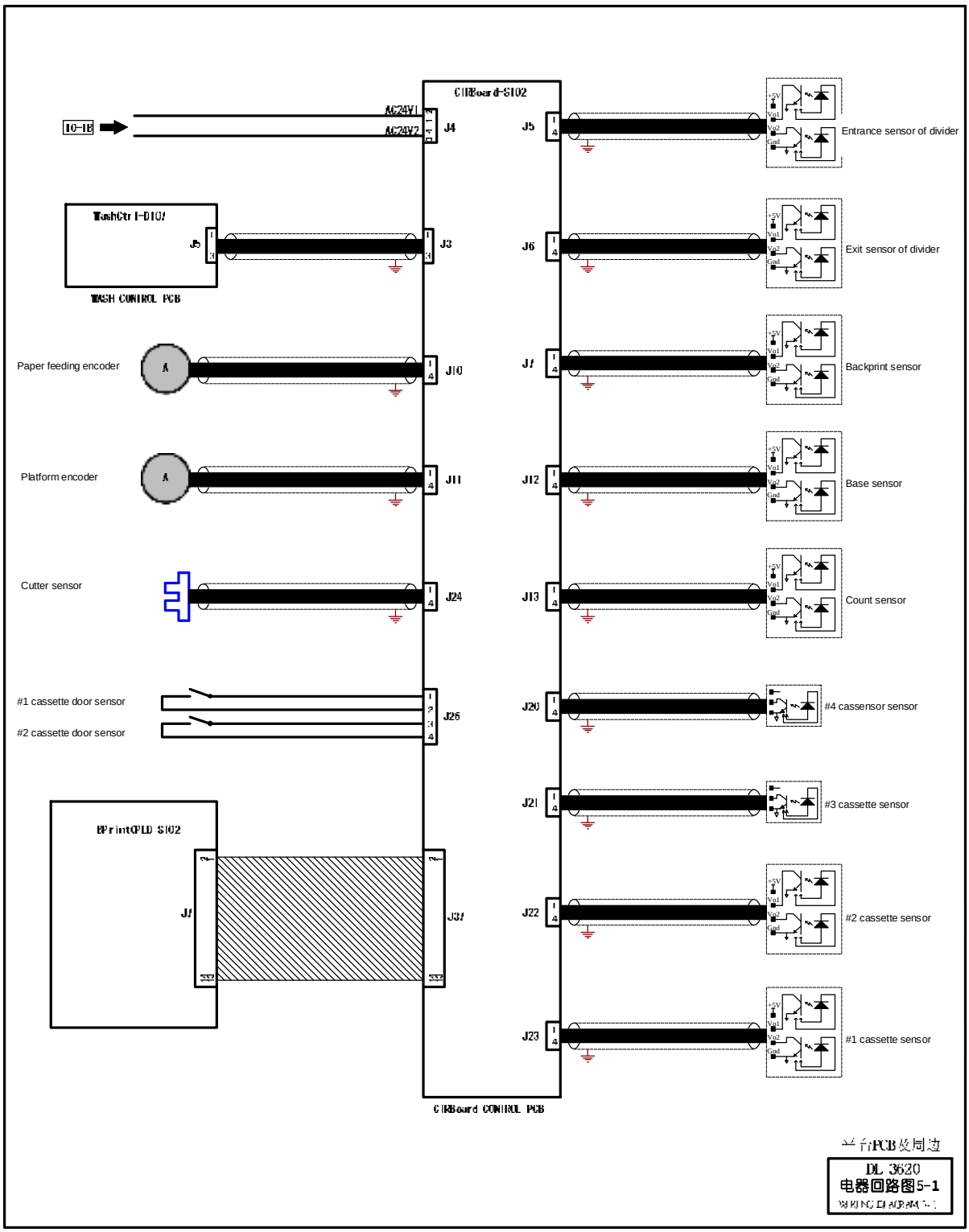
5.12 DVI drive and surroundings(Fig.2-1)



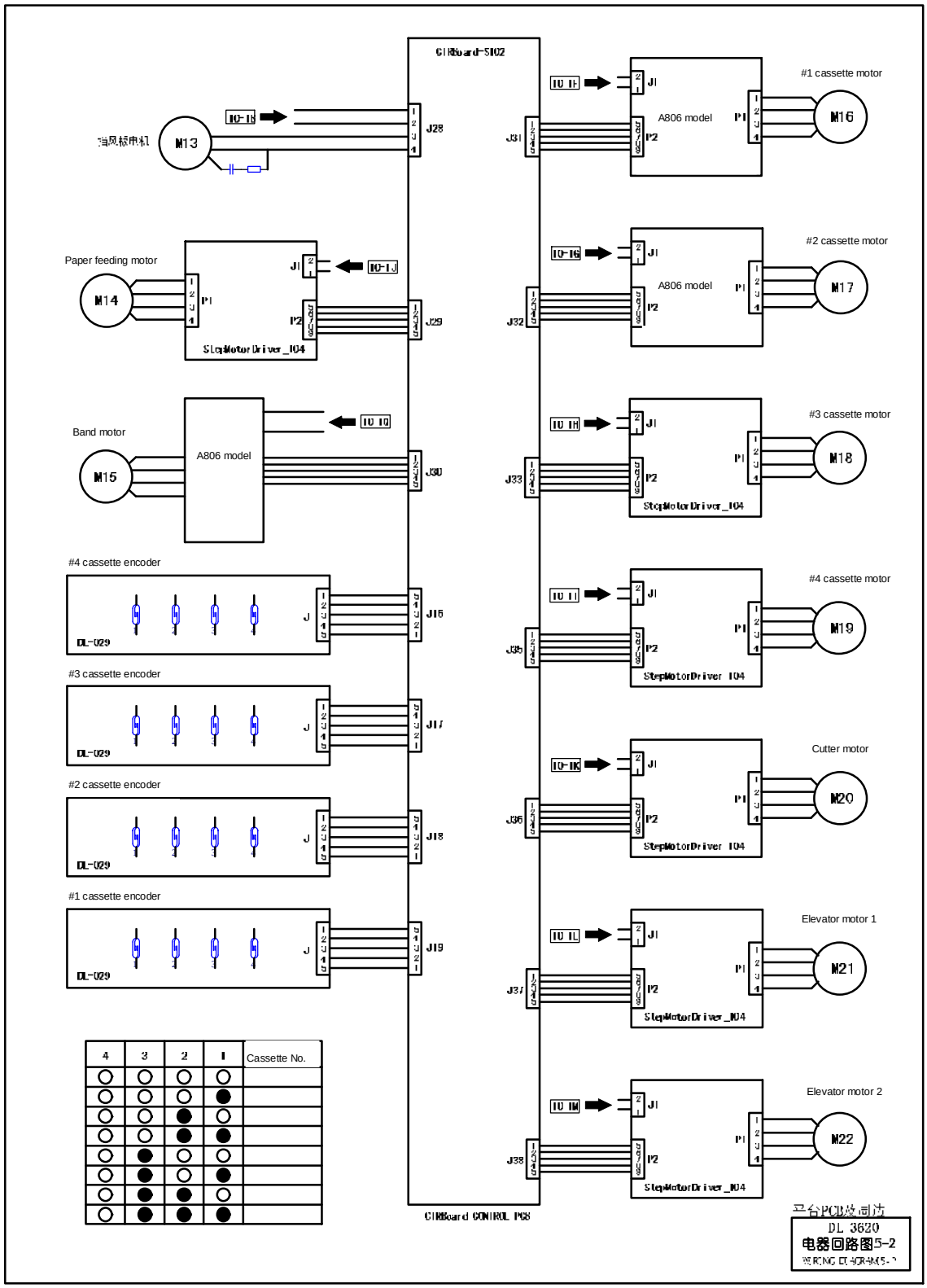
5.13 LEDLamp and surroundings (Fig.2-2)



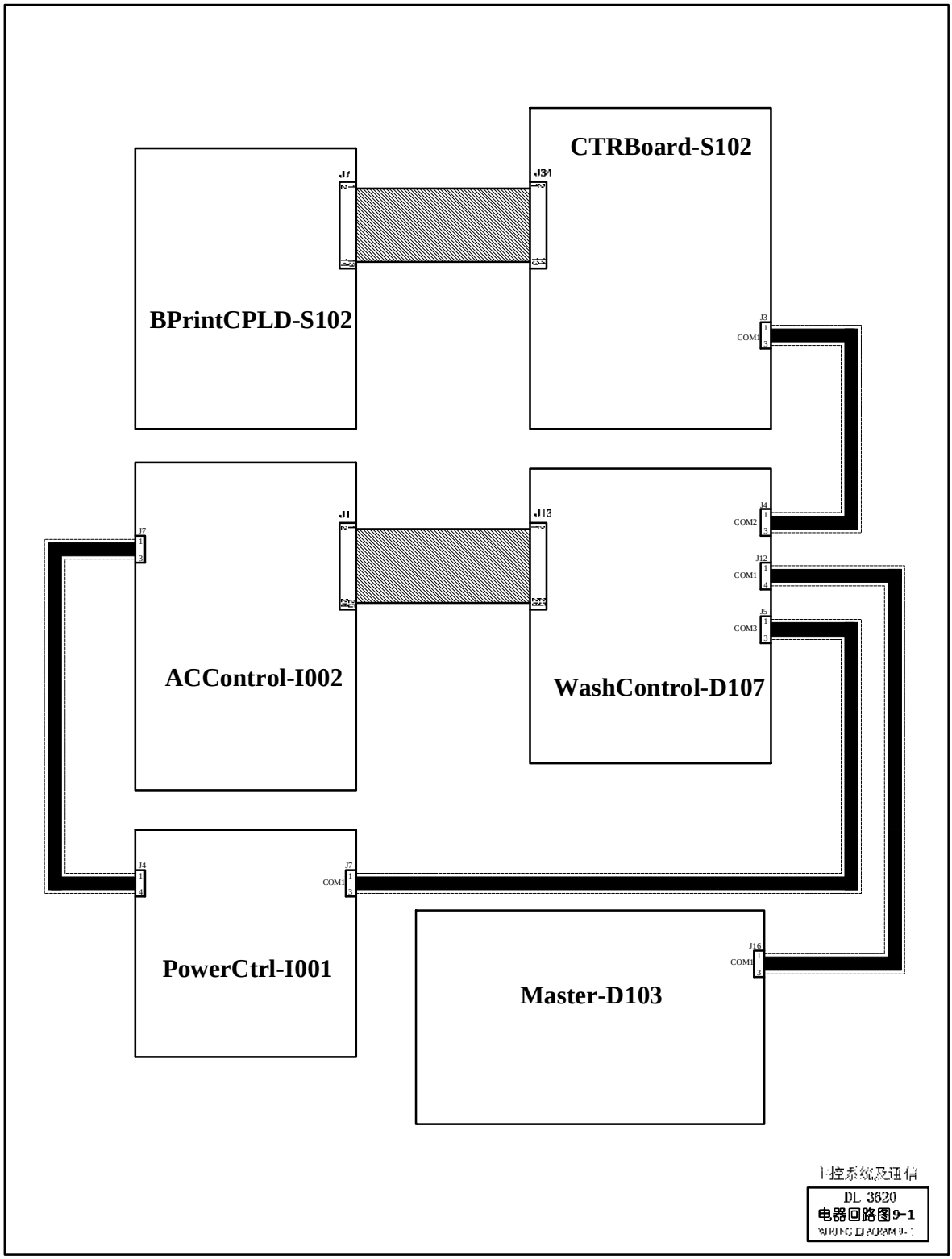
5.14 Platform PCB and surrounding(Fig.6-1)



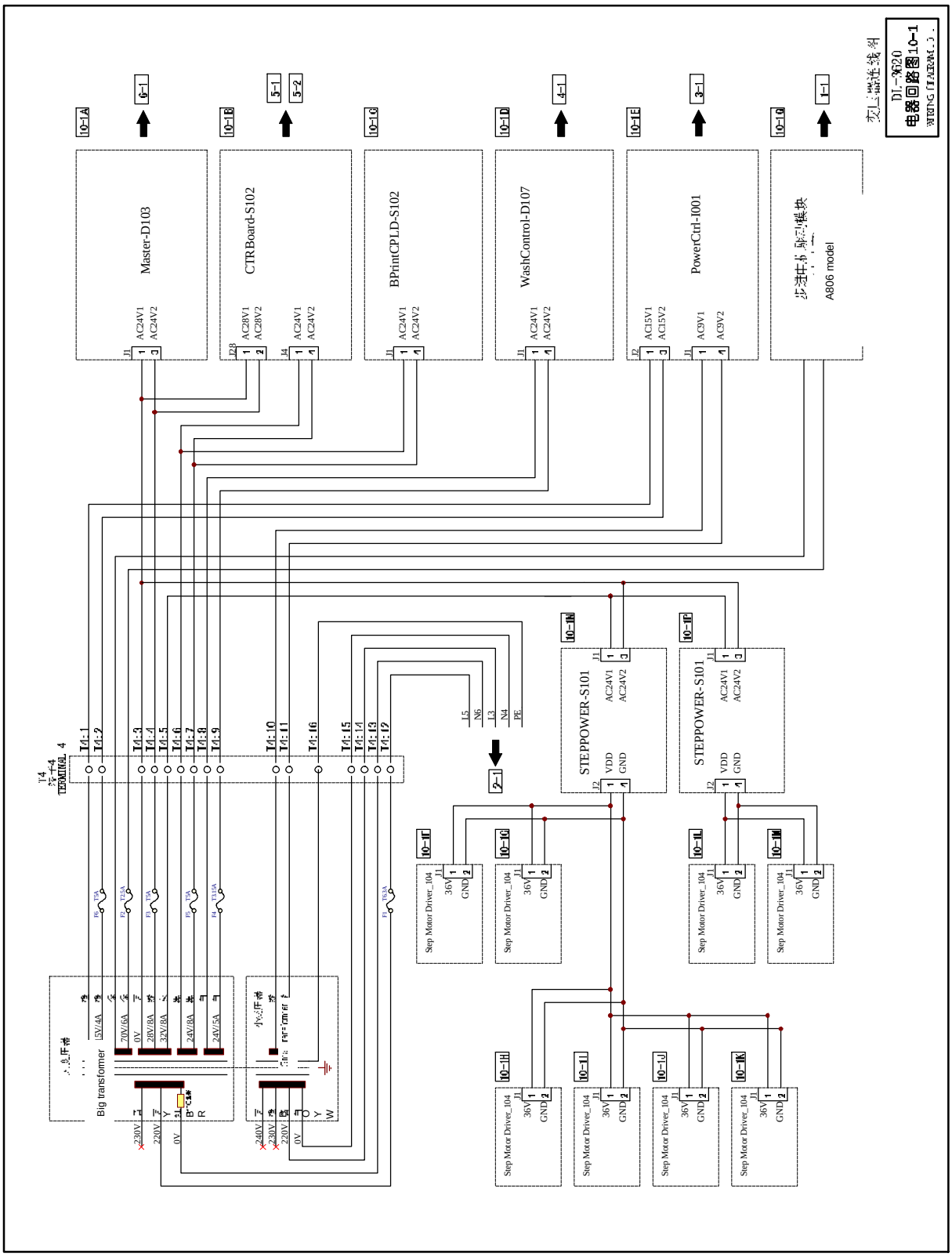
5.15 Platform PCB and surrounding(Fig.6-2)



5.16 Wiring of the machine(Fig.9-1)

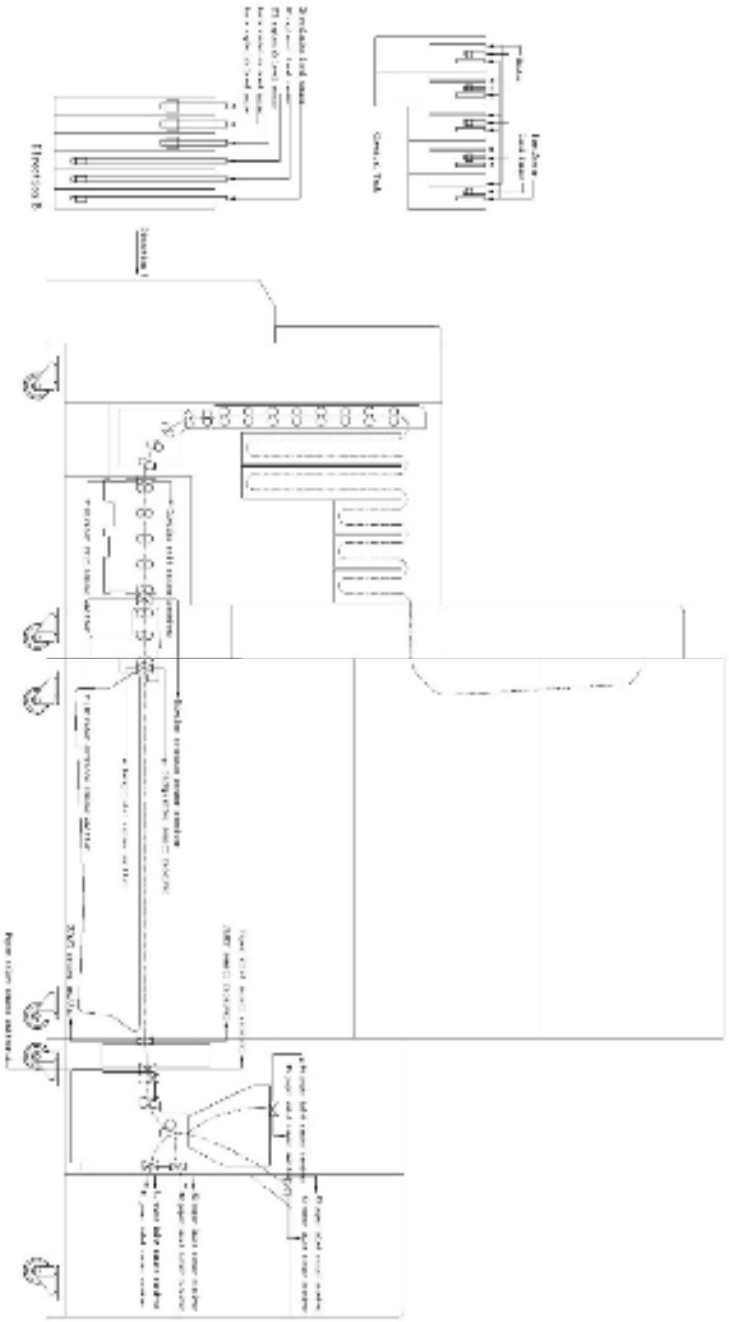


5.17 Wiring of the machine(Fig.10-1)



Chapter 6 Sensors

Illustration for sensors



6.1 Type of sensor

There are mainly three types of sensors

1、Infrared emitter and receiver

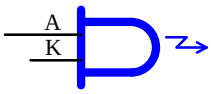


Fig.1 Infrared Emitter

Infrared Receiver

2、Cross correlation sensor,Slot-type sensor

Fig.3 Circuit Open

Fig.4 Circuit On

3、Reed Type Relay

Fig.5 Circuit Open

Fig.6 Circuit On

6.2 Sensor Function

Sensor	Use and type	Position
Magazine ID sensor	For detecting paper width Type: Reflective Photosensor	Paper magazine outlet
Paper Inlet sensor	For detecting if paper available Type: Reflective Photosensor	Paper magazine inlet
Paper loading sensor	For detecting if paper loading ready Type: correlation photosensor	Ahead of cutter
Cutter spacing sensor	For the cutter spacing Type: Slot-type photosensor	To the right of cutter
Cutter home sensor	For detecting home place of cutter Type: Slot-type photosensor	To the left side of cutter
Platform START sensor	For detecting paper length Type: correlation photosensor	Behind cutter
Platform backprinter sensor	For checking whether backprint is on Type: correlation photosensor	Behind platform
Divider entrance sensor	For detecting whether paper available in the entrance of distributor Type: correlation photosensor	Distributor entrance
Divider exit sensor	Check if paper already into processor Type: correlation photosensor	Distributor exit
Temp. Sensor	Sensors respectively for measuring temp.s of CD,BF,STB and dryer Type:AD592 integrated thermosensor	Respectively in CD,BF,STB and dryer tanks
Replenish Level sensor	Sensors respectively for measuring the waste level of CD,BF and STB Type: Floater sensor	Respectively in CD,BF,and STB tanks
Waste Level sensor	Detecting the level of CD, BF and STB waste Type: floater sensor	Respectively at the lid of waste tank of CD,BF and STB
Sorter Sensor	For detecting the STOP position of sorter Type: slot-type photosensor	Sorter limiter

Chapter 7 Illustration for adjustable components

7.1 CPLD-S102 trimmer function for Backprint

Trimmer	Function	Description
W1	Votage adjustement of Pins for Backprint A	Set voltage to around 15V
W2	Votage adjustement of Pins for Backprint B	Set voltage to around 15V
W3	Word deepth adjustment for Backprint A	Adjust the word deepth on the Backprint A
W4	Word deepth adjustment for Backprint B	Adjust the word deepth on the Backprint B

7.2 WashCtrl-D107 trimmer function

Trimmer	Function	Description
VR1	Temperature voltage reference adjustment	Set VR1 0.273V
VR2	CD temperature adjustment	Adjust VR2 to make the actual temperature same as temperature displaying
VR3	BF temperature adjustment	Adjust VR3 to make the actual temperature same as temperature displaying
VR4	STB1 temperature adjustment	Adjust VR4 to make the actual temperature same as temperature displaying
VR5	STB2 temperature adjustment	Adjust VR5 to make the actual temperature same as temperature displaying
VR6	STB3 temperature adjustment	Adjust VR6 to make the actual temperature same as temperature displaying
VR7	Dryer temperature adjustment	Adjust VR7 to make the actual temperature same as temperature displaying
VR8	Room temperature adjustment	Adjust VR8 to make the actual temperature same as temperature displaying
VR8A	Standby	

7.3 Master-D103B trimmer function

Trimmer	Function	Description
VR1	Base voltage adjustment	Adjust VR1 to make base votage =5.0V
VR2	LED protection	Adjust VR2to make the voltage =1.0V

Chapter 8 Dip Switch Function

8.1 CtrlBoard-S102 PCB Dip switch description

State	1	2	3	4	5	6	7	8
	Upgrade progamme	Standby	Standby	Standby	Platform encoder	Paper-delivering encoder	Machine Model	
ON	Compellent upgrade				Without code	Without code		
OFF	Normal upgrade				With code	With code	DL-3620	

8.2 WashCtrl-D107 PCB dip switch description

State	1	2	3	4	5	6	7	8
	Upgrade programe	For measuring sensor	Standby	Standby	Standby	Standby	Buzzer	Photoreceiver
ON	Compellent upgrade	Measurable					OFF	Manual
OFF		Unmeasurable					ON	Automatic

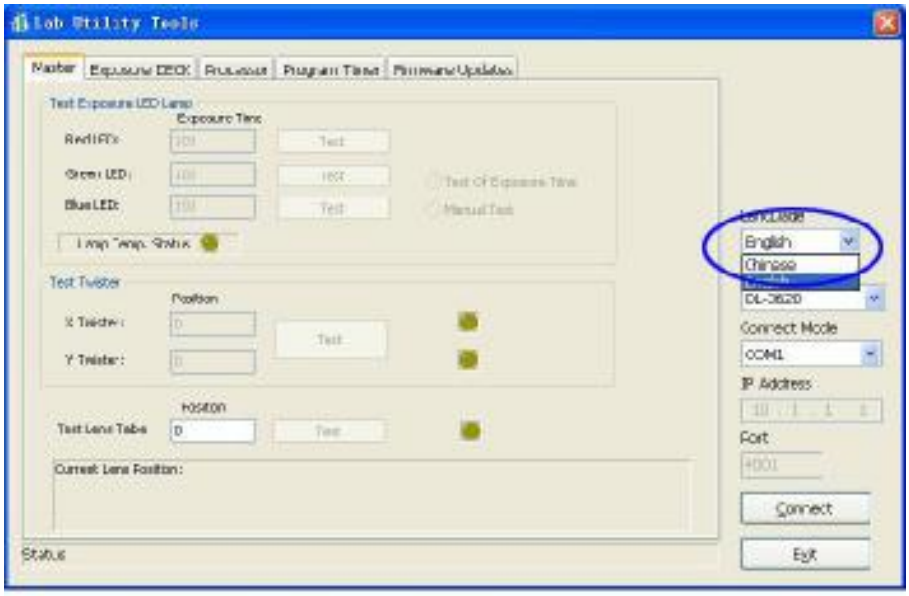
8.3 StepMotorDrive_104 PCB dip switch description

State	1	2	3	4	Description	Location
Type 1	OFF	ON	ON	ON	Full step	
Type 2	ON	OFF	ON	ON	Half step	Cutter motor
Type 3	ON	ON	OFF	ON	Quarter step	Cassette motor

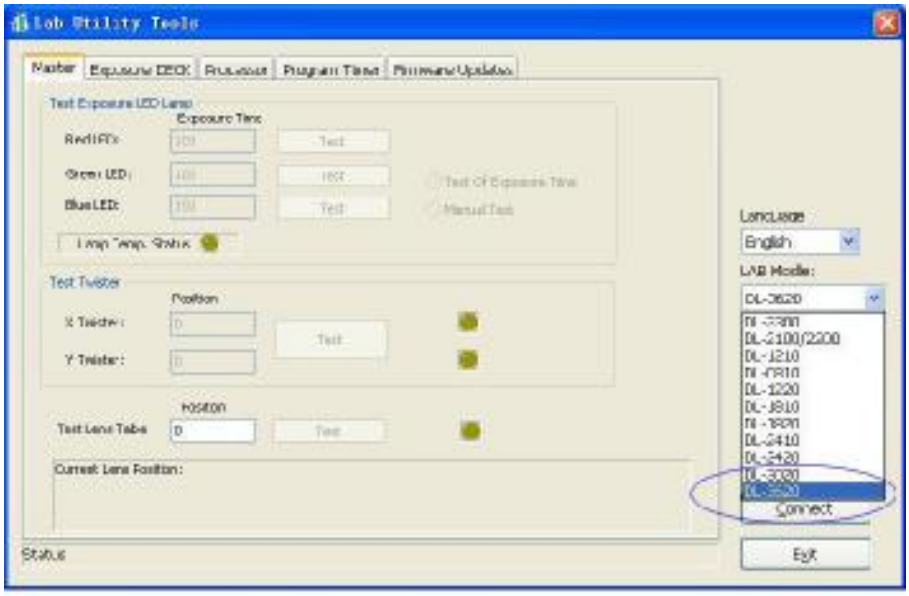
Chapter 9 The LAB software

Click the icon to open the software (Usually go C:\DL3620\LabUtil)

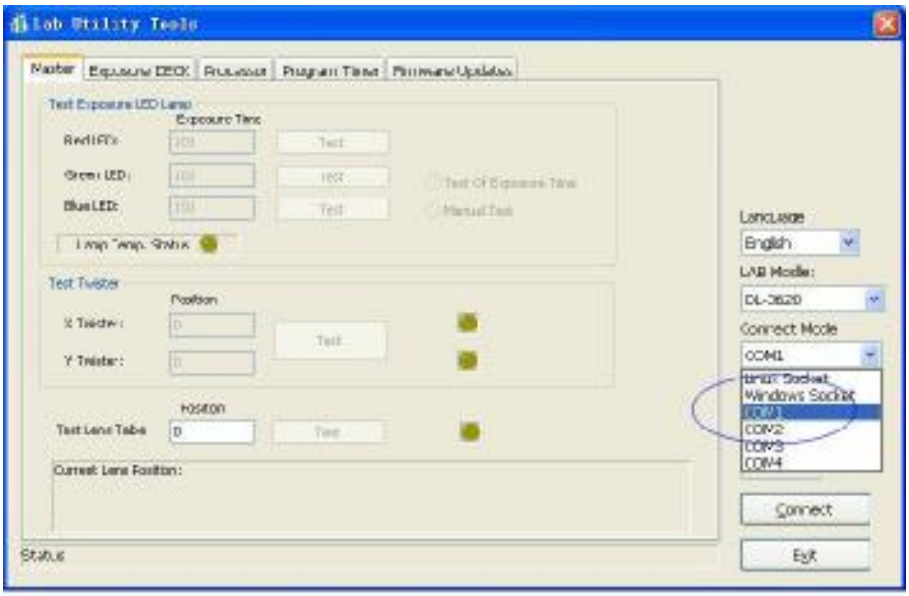
- You can select either English or Chinese



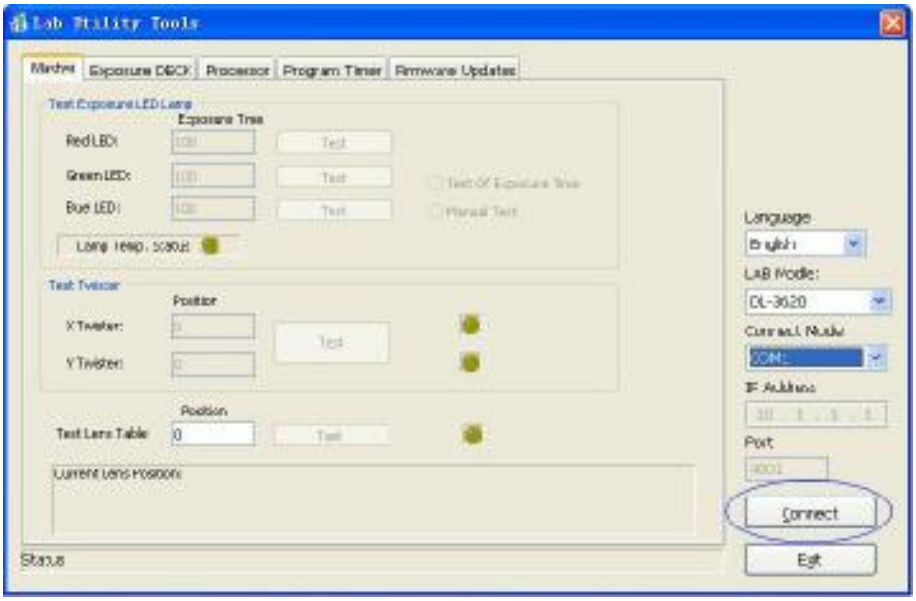
- You can choose the corresponding model for the machine .



- Select connect mode. Here we choose **COM1** (Exchange cable F15 in Master-D103B board to PCF15) instead of Linux Socket



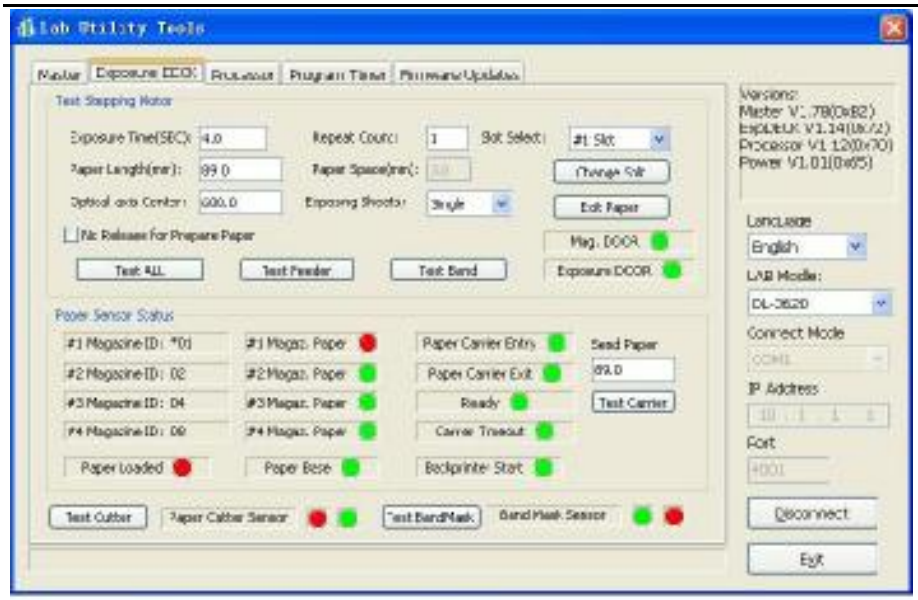
- Click button **Connect** to communicate with the software.



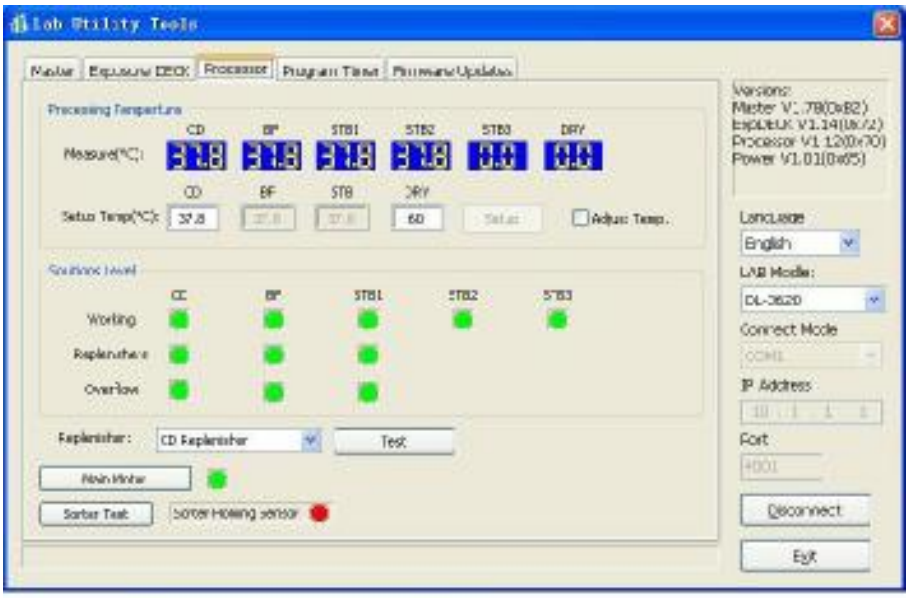
- Function of main buttons of Exposure DECK
  - Exposure Time: Input numbers to simulate exposure(the LED is not on), exposure platform pause for a few seconds
  - Repeat Count: Input the number of Repeat Count.
  - Paper Length: Input the length for current paper advancing.
  - Paper Space: Input numbers, it is the space between the two pieces of photo, eg.: 2mm means the space inbetween photos is 2mm. This button valids only when button Exposing Sheets is selected as double or Triple. The default is unvalid.
  - Optical-axis Center: Input numbers and click
  - Exposing Sheets: Select the sheets to exposure.
  - No Release for Prepare Paper: If this item is selected, the paper will pause on exposure deck instead of going into processor.
  - Change Slot: Select the Slot (paper magazine) you want and click button Change Slot.
  - Paper Sensor Status: Test whether the sensors work normally. *01 means the number of current cassette is 01, * means current cassette.
  - Test Cutter: click this button and the cutter rotate once.

Sensor indicator description

Type	With paper	Without paper
correlation	Indicator light red	Indicator light green

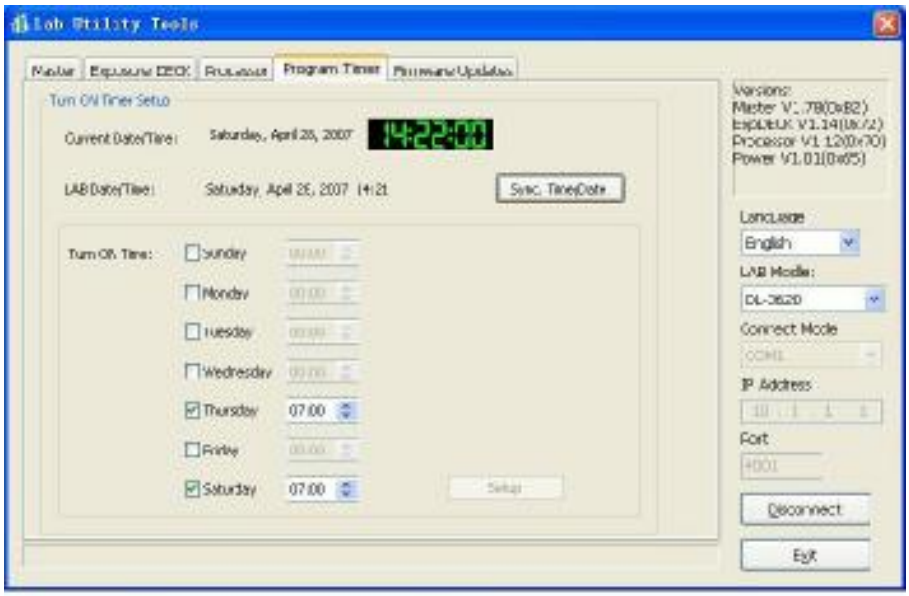


- Function of main buttons of Processor
  - Measure: Display current chemical temperature
  - Setup Temp: Input the temperature you want to set, click button Setup Temp
  - Replenisher: Select the replenisher you want to test and click button Test.
  - Sorter Test: Click this button to start sorter and Sorter Homing Sensor(indicator is red, when it stops, the indicator is green.).



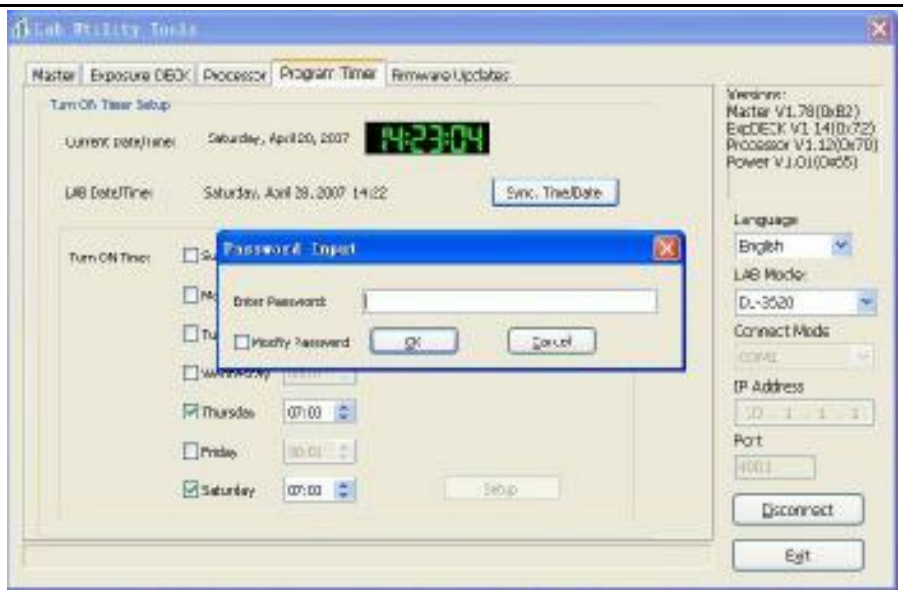
- Function of main buttons

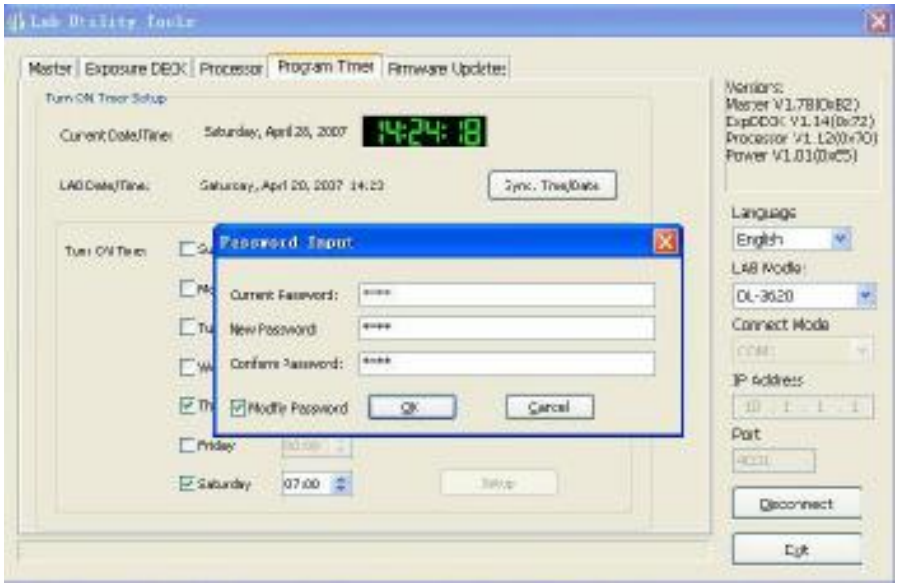
- ✧ Current Data/Time: The time of upper computer.
- ✧ LAB Date/Time: Time of Program timer.
- ✧ Sync. Time/Date: synchronize the time of LAB Date/Time with that of Current Date/Time.
- ✧ Turn On/Time: Choose the day and input time, click button Setup to finish setting.



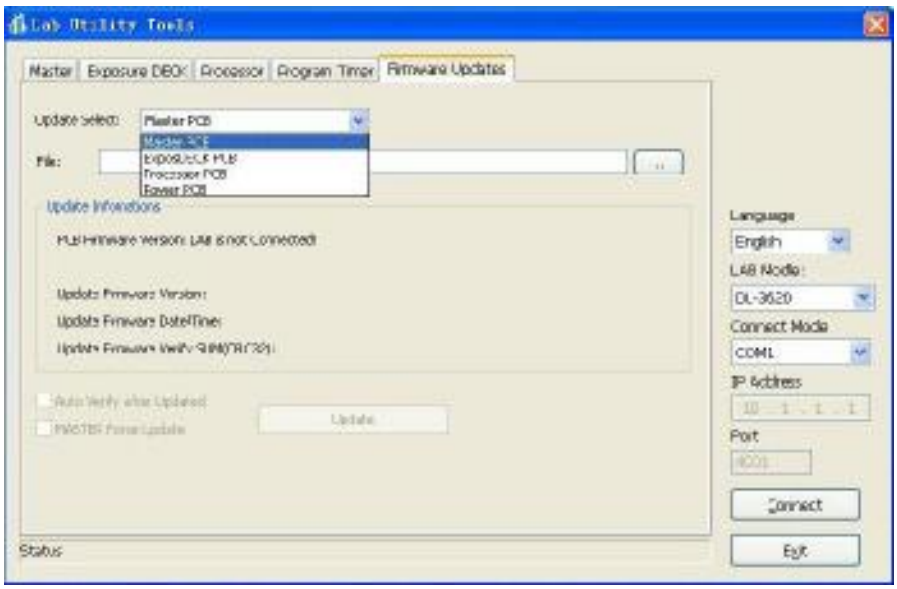
➢ Change password

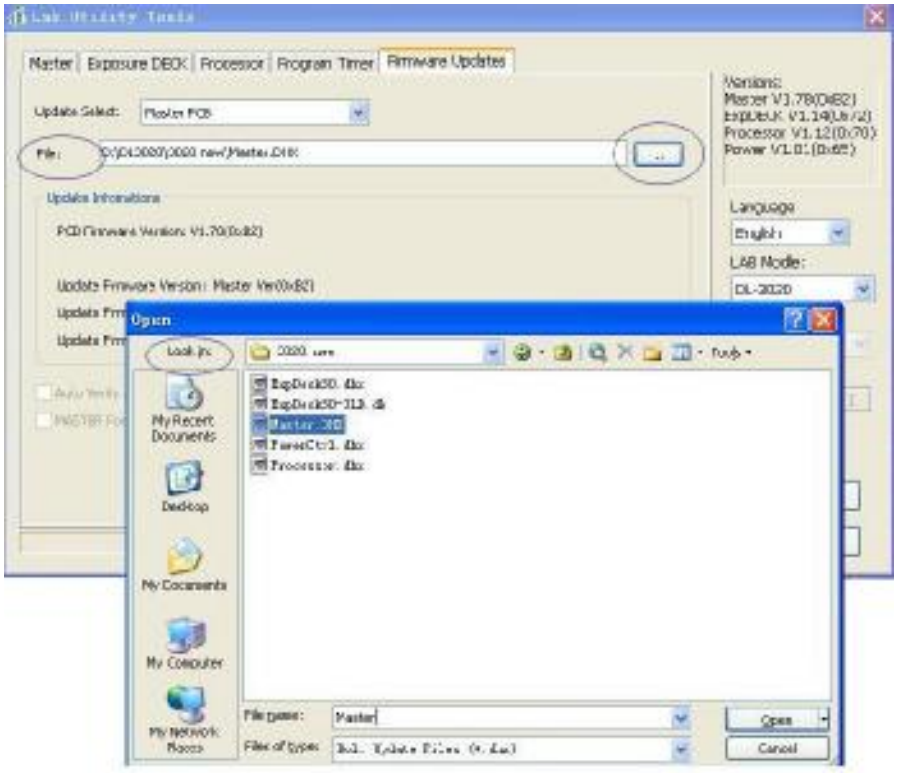
Click Firmware Updates menu, a dialogue box Password Input will pop up. The initial password is “1234”, you can also customize the password.



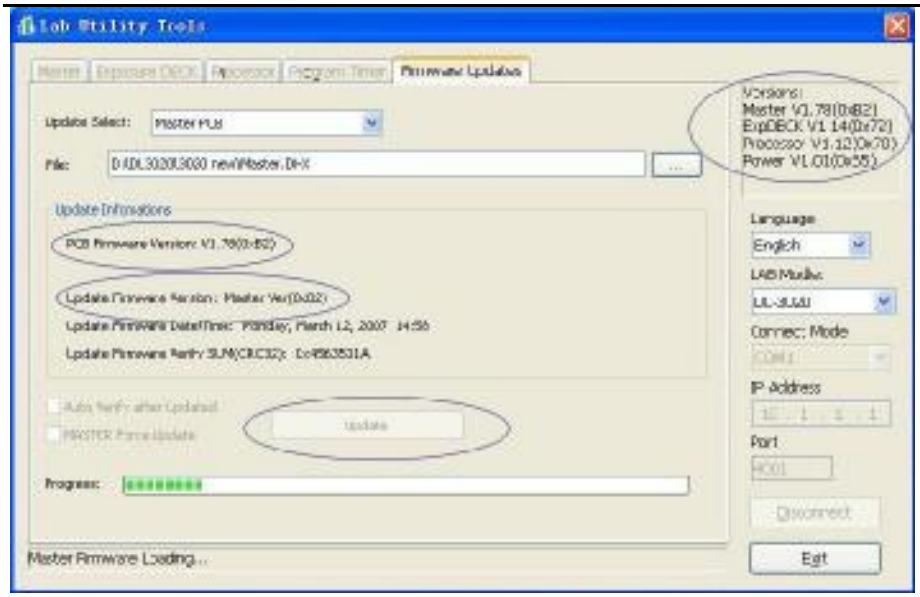


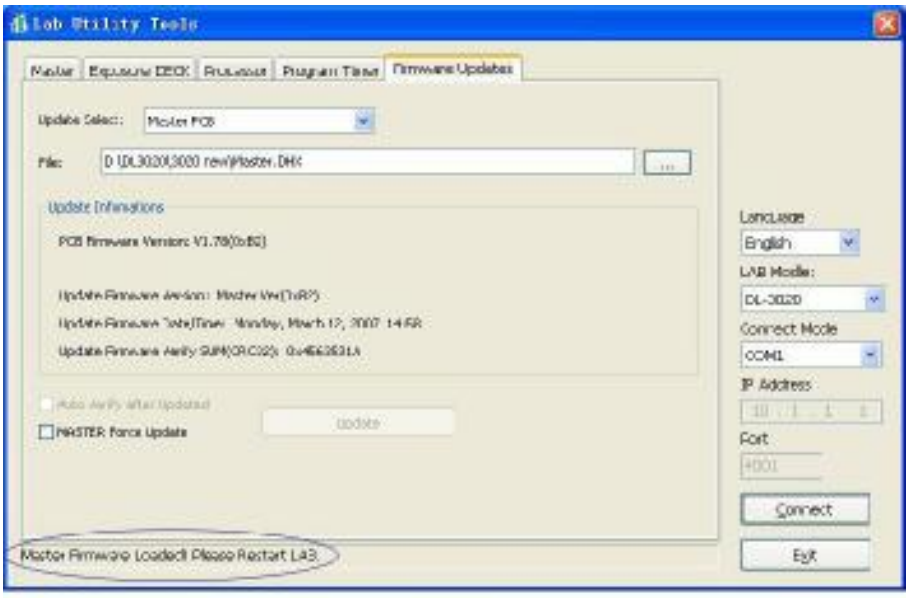
- Firmware Updates
  - Select the PCB you want to update





- You can check the versions of the current PCB firmware and that of the update; you can also check the versions of all current PCB firmware. Click button Update to update the firmware.(Better to restart the processor button after one PCB firmware finishing updating)


Lab Utility Tools
Firmware Updates
Update Select:
Master PCB
File:
Update Informations
PCB Firmware Version: V1.78(0xB2)
Update Firmware Version: Master Ver(0x02)
Update Firmware Date/Time: Monday, March 12, 2007 14:56
Update Firmware Verify SUM(CRC32): 0x4B63631A
Auto Verify after Updated
MASTER Force Update
Update
Progress:
Master Firmware Loading...
Versions:
Master V1.78(0xB2)
ExpDECK V1.14(0x72)
Processor V1.12(0x70)
Power V1.01(0x55)
Language
English
LAB Mode:
DL-3620
Connect Mode
COM1
IP Address
Port
4001
Disconnect
Exit


Lab Utility Tools
Master
Exposure DECK
Processor
Program Timer
Firmware Updates
Update Select:
Master PCB
File:
D:\DL3020\3000 new\Master.DHX
Update Informations
PCB Firmware Version: V1.78(0xB2)
Update Firmware Version: Master Ver(0x02)
Update Firmware Date/Time: Monday, March 12, 2007 14:56
Update Firmware Verify SUM(CRC32): 0x4B63631A
Auto Verify after Updated
MASTER Force Update
Update
Master Firmware Loaded! Please Restart LAB
Language
English
LAB Mode:
DL-3620
Connect Mode
COM1
IP Address
Port
4001
Connect
Exit

Chapter 10 Trouble Shooting and Solution

10.1 Hardware Symptom

Note: The following symptom, causes and solution are obtained speculatively for reference of professionals only.

Symptom	Causes	Solution
Equipment Power Gone	1、No power with socket 2、Air switch off or damaged	1、Check power system confirm if it is AC220V and 50 HZ 2、Turn on or check air switch
PC unable to start up	1、ATX Power switch failure 2、Poor contactof computer memory, VGA card,mainboard and CPU	1、Check ATX power switch 2、check the power on signal cable for computer memory, VGA card,main board,CPU and ATX-SW
Monitor indicator gone or no display	1、Monitor power switch not on 2、Poor contact of VGA card on mainboard and CPU	1、Turn on monitor power 2、Check or re-plug in VGA card,check the room humidity
Chemical temp. extremely low	1.chemical temp. setting incorrect 2、chemical low level or floater sensor deflective 3.heater damaged or ACControl-I1002 out of order.	1、Properly set chemical temp. 2、Repl. chemicals to raise the solvent level or check floater 3. Check heater or replace ACControl-I002 PCB
Chemical temp.extremely high	1、Chemical temp. setting incorrect 2、Circulation pump not working 3、ACControl-I002 PCB out of order	1、Properly set chemical temp. 2、Check circulation pump 3、Check or replace ACControl-I002 PCB
Dryer temp. exteremely low	1.dryer temp. setting incorrect 2、dryer coil broken 3、dryer protector damaged	1、properly set dryer temp. 2、check dryer coil 3、check the protector(above the tank)
Dryer temp. extremely high	1、dryer temp. setting incorrect 2、AC control board defective 3、dryer fan not working	1、properly set dryer temp. 2、Replace ACControl-I002 PCB 3、Check dryer fan.
Cutter not working	1、cutter motor cable broken 2、cutter motor malfunction 3、cutter sensor defective	1、check cutter motor cable 2、check cutter motor 3、check cutter sensor

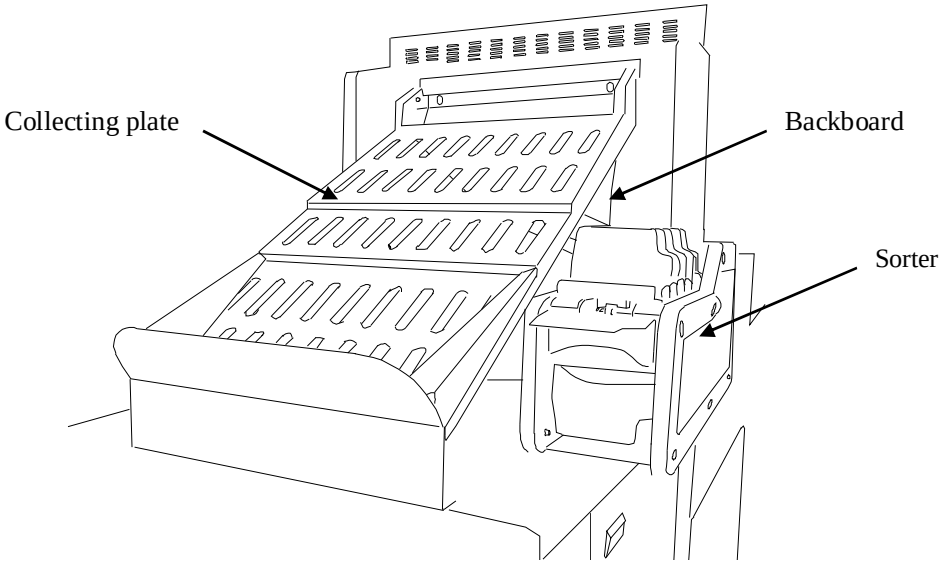
Scratcheds on photo	1、paper magazine defective 2、processor rack defective	1、check paper magazine 2、check processor racks
Incorrect sort	1、sort time setting incorrect 2、sorter malfunction	1、reset sort time 2、check sorter cable or its photosensor and limiter switch
Photo dirty	1、processor racks dirty 2、chemical dirty	1、wash and maitian racks 2、replace chemicals
Paper jam in processor	Processor racks malfunction	Check processor rack
Processor motor not working	1、processor motor cable broken 2、processor chain broken 3、processor motor defective 4、capicitor or processor motor burned	1check processor motor cable 2、replace processor chain 3、replace processor motor 4、replace capicitor of processor motor
Incorrect photo centring	Photo centring setting incorrect	Reset photo centring
Magazines unable to switch	1、System data setting incorrect 2、malfunction of shifter between magazines	1、reset system data 2、check magazien shifter(e.g.:signal cable)
No paper feeding	1、cable or belt of paper feeding motor broken 2、paper feeding motor broken	1、check cable or belt of paper feeding step motor 2、check paper feeding step motor
Platform belt not moving	1、cable or belt of paper feeding motor broken 2、paper feeding motor broken	1、check cable or belt of paper feeding step motor 2、check paper feeding step motor
Backprint inconstant	Platform outlet photosensor out of order	Check the photosensor(eg: therer is dirt on the sensor
Repl. pump not working	1、repl. pump switch not on 2、Repl. flux settings too small 3、Repl. pump out of order	1、switch on repl. pump 2、set reasonable repl flux 3、check repl. pump
Waste overflow without prompts	1、floater cable of waste broken 2、floater of waste tank broken	1、check the cable of floater 2、replace floater
Paper uneven	1、vacuum fan cable broken 2、vacuum fan broken	1、check the vacuum fan cable 2、check vacuum fan

Chapter11 Mechanical parts adjustment

Caution： For the sake of safety, switch off the machine before performing any adjustment.Chemical spatters will probably injure your eyes,therefore it is recommended to wear blinders and in case chemicals spatter into the eyes, wash with much water and see doctor as well.Chemical will also injury your skin,so gloves and uniform must be worn during operation. In case skin touches chemicals, wash with water immediately and furthermore see doctor if necessary.

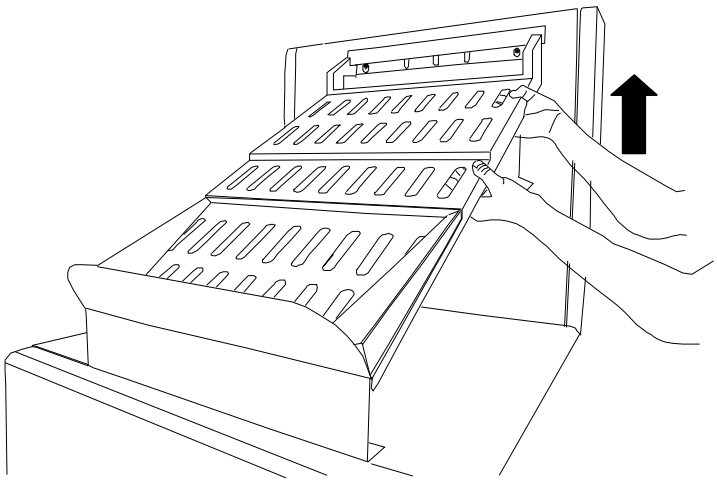
11.1 Assembly and Disassembly of collecting plate

- The print exit of DL-3620 is consisted of a collecting plate, a backboard and a sorter (Large format prints are received by collecting plate while small format prints are received by sorter). Please refer to the following picture:



(Fig.11-1)

- Disassemble the collecting plate by lifting it up and take it apart from the hook, and then it can be taken off from the machine (As the following figure)

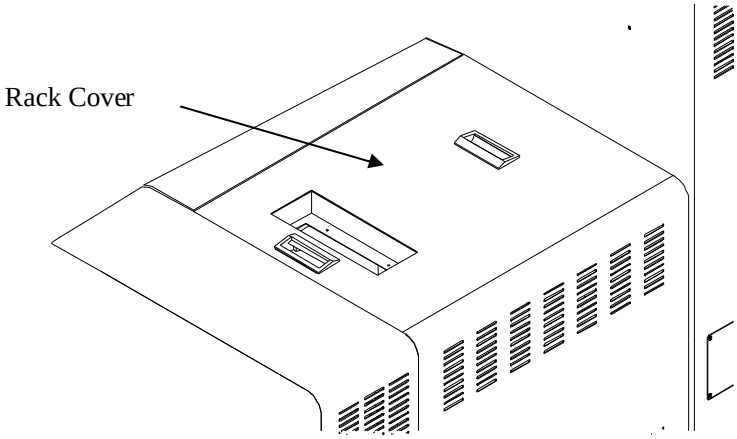


(Fig.11-2)

- Assemble the collecting plate by hitching it to the hook.

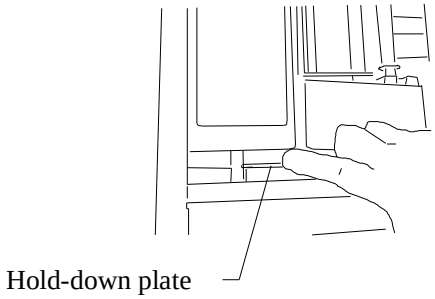
11.2 Assembly and disassembly of raiser rack

- Remove the collecting plate(refer to chapter 1.1 for more detail，as Fig.11-3).



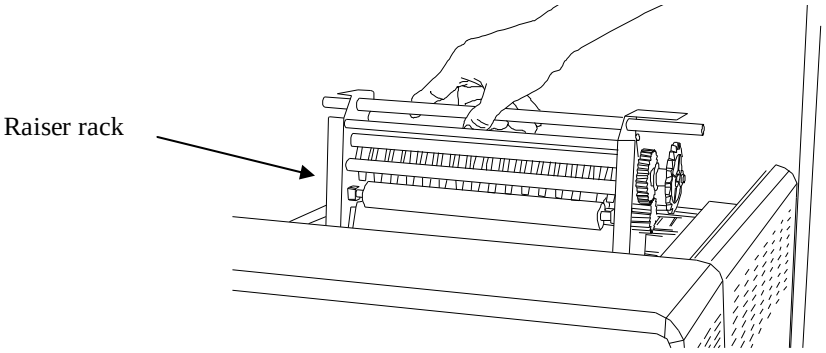
(Fig.11-3)

- Poke the hold-down plate



(Fig.11-4)

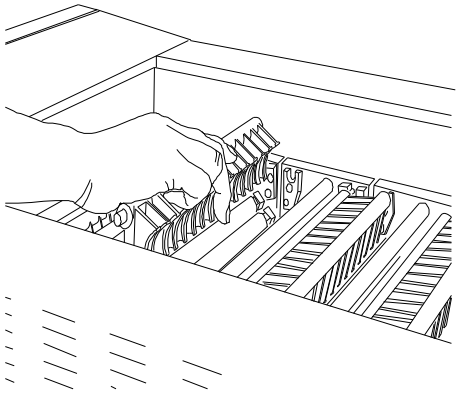
- Take out the raiser rack



(Fig.11-5)

11.3 Rack disassembly

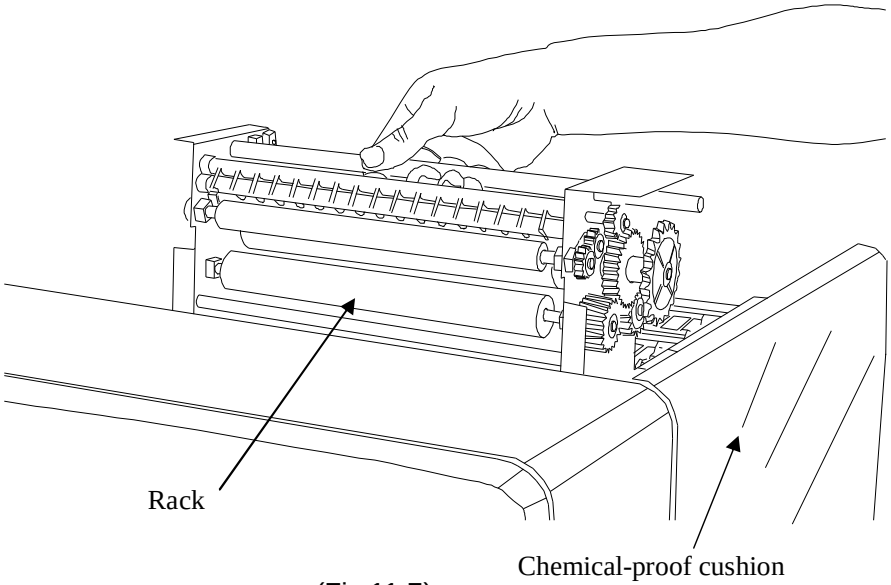
- Same as Chapter 11.4 assembly and disassembly of raiser rack **step 1**
- Take away the crossovers in sequence as follows



(Fig.11-6)

- Put the chemical-proof cushion.
- Take out the racks in sequence as follows.

N.B.: In order to avoid chemical inter-contamination, it is suggested to take out the rack slowly in a sequence from STB to CD.

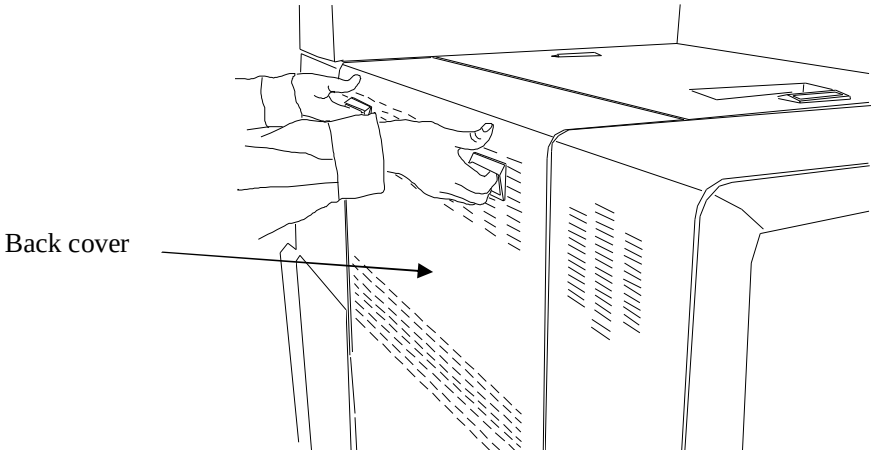


(Fig.11-7)

11.4 Cleaning and Replacement of replenish pump unilaterial pump

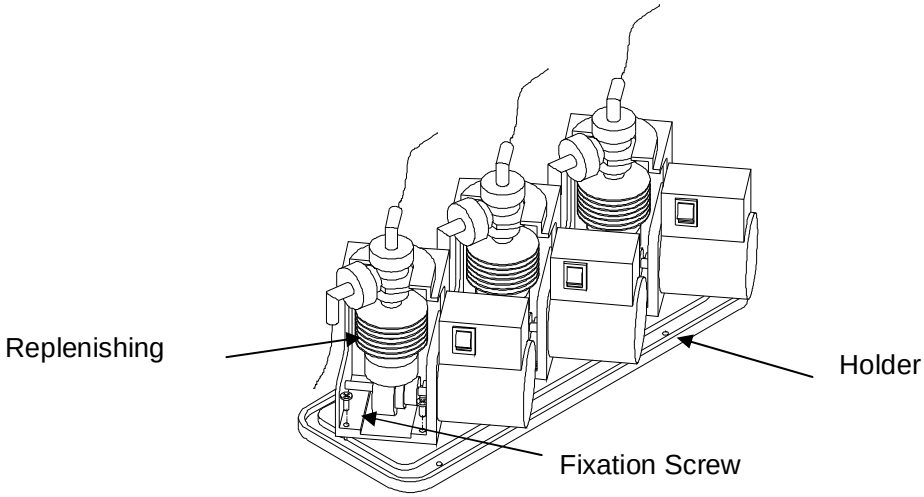
- To prevent chemical running over when cleaning or replacing a unilateral valve, use a container to contain the chemical during operation.

- Remove machine back cover.



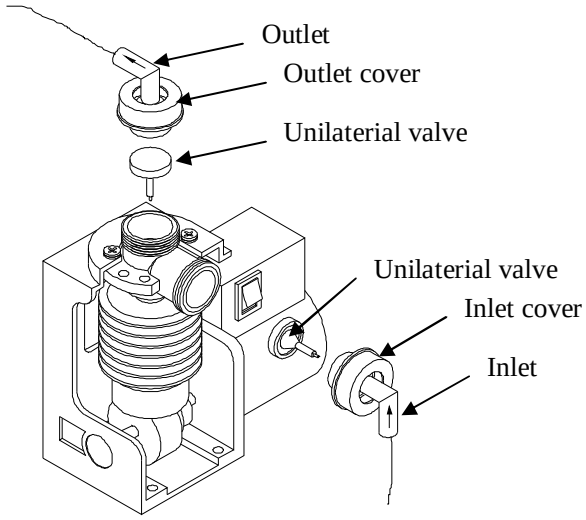
(Fig.11-8)

- Wear glove for the sake of your hands.
- Remove the fixation screws,and take out the replenishing pump.



(Fig.11-9)

- Tweak out the cover of the replenishing pump, remove the inlet element and outlet element (be care, chemical will run out.(As Fig. 11-10).



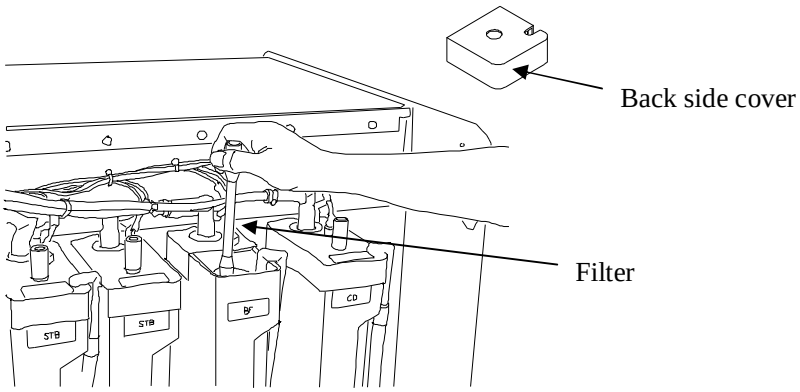
(Fig.11-10)

- Restore the inlet and outlet cover to the replenishing pump, make sure it is tight. Make sure the unilateral valve has been installed to the correct direction.
- Screw down the fixation screws to restore the replenishing pump to the machine.
- Restore the back cover

11.5 Filter cleaning and replacement

Filter is used to filtrate the solvent coming up from ciculation pump. Dirty chemicals will result in defective photos. Check filters once a week and when it is discovered that filters are obviously dirty or chemicals are running unsmoothly, it is necessary to wash or replace the filters

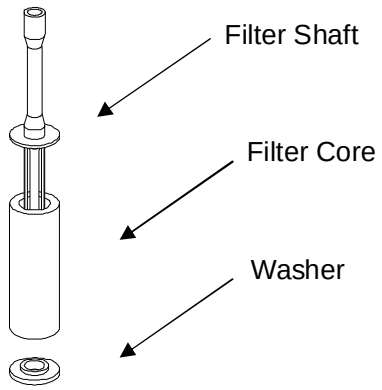
- Take off the backside cover of a working tank, and take out the filter unit carefully.
- Clean the filter units bwith water or replace the filters.



(Fig.11-11)

Caution: While taking filter out of heating tank, it must be slow, avoid the spattering of chemicals. And do in sequence to prevent from incorrect location resulting in chemical contamination.

- Check if filter core is clean. In case it is unnecessary to replace, then
  - Wash filter core in water and knock the core on hardware to shake off the dust stuck on its inner side.
  - Dry the filter core
  - Put the filter in the original place
- In case it is necessary to replace the filter core, then:
  - Take off the washer then move the core away from the shaft.
  - Clean the shaft.
  - Put the new core on the shaft then fix the washer
  - Install the filter in the original place

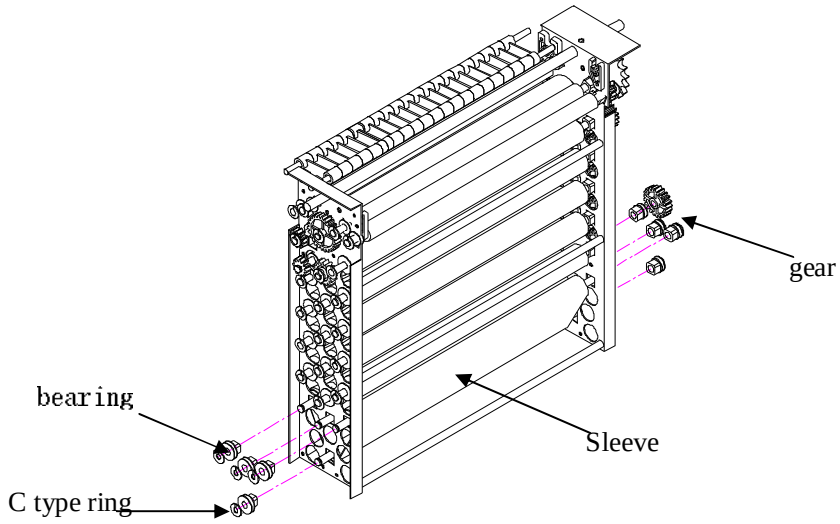


(Fig.11-12)

11.6 Replace the rubber sleeve on the rack bottom

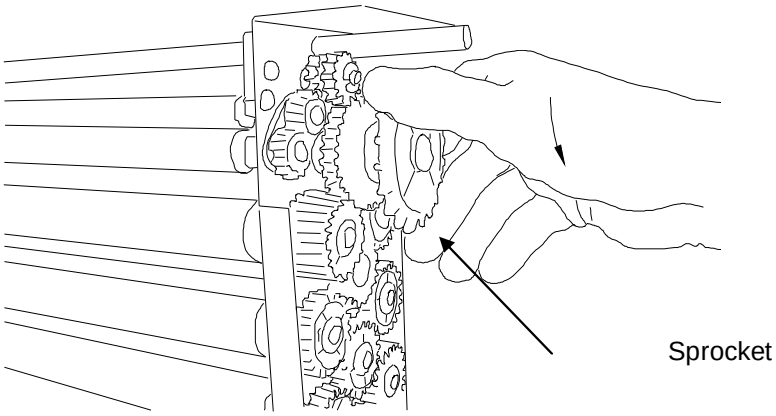
If the sleeve is discovered broken, distorted or attached with lots of debris, then it is necessary to replace with a new one.Poor sleeve will create a overlapping of paper or paper jamming.

- Take out the rack with sleeve that needs replacement (refer to Section 1.5 Rack disassembly for detail.
- Diassemble the clips,gears and plastic bearings inside the sleeve, which are on the two ends of the three rollers.(As Fig.11-13)



(Fig.11-13)

- Remove the 3 rollers which are included inside the sleeve from the rack, and then remove the sleeve.
- Replace the sleeve, Reassemble the 3 rollers into the rack, restore bearings, gears and C type rings.
- Turn the double tooth gear anticlockwise to make sure the sleeve runs well.



(Fig.11-14)

- Restore rack to machine(**N.B.：Do it gently to prevent chemical splash)**

11.7 Rack check-up and cleaning

Defective racks will cause scratch, paper edge dragging and paper jam.

- Take out rack from working tank
- Clean the racks and crossovers under running water with a soft sponge.
  - ✧ Processing racks must be regularily cleaned,the detailed steps are：Take out the processing racks, clean them gently with a soft brush, especially the rollers, gears and guides; make sure to wipe away the crystallization.
  - ✧ After processing for some time, the bottom rubber sleeve must be cleaned. Take out the rubber sleeve,put it in water and clean it，refer to chapter 1.8 for more detail.
- As per the Fig.11-15, check the performance one by one of the racks.

	Raiser Rack	Rack	Dryer Rack
Loose springs			
Roller broken			
Roller distorted			
Gear worn out			
Bearing inbetween gears broken			
C-Fastener scaled off			
Rubber sleeve on rack bottom distorted and with too much appendages			

（Fig.11-15）

- Put back racks on their original locations.(Caution:Slowly put back the racks to avoid overflow or spatter of chemicals.
- Take off the chemical protective mat
- Put back all the crossovers: the proper sequence from CD to STBs is Blue/Red/White and the black end should be towards the console side.
- Put back the racks lid.
- Put back the processor cover

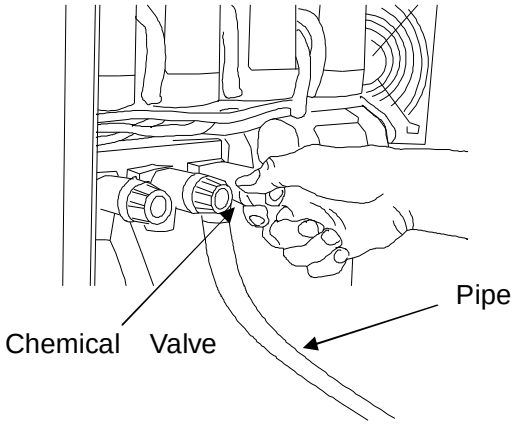
11.8 Check and clean chemical tank and pipe network

For the sake of convenience, this check can be performed while replacing chemical.

- Remove collecting place (Refer to)
- Take away the left side cover.(refer to Section 1.7 Filter cleaning and Replacement for detail.
- Check the interfaces of pipelines and chemical tanks to find out if there is any leakage.
- Empty working solution

Empty all the chemicals according to the following steps:：

- Connect the waste valve to a container or the like with a pipe.(As Fig.11-16)
- Turn on the chemical valve to empty the chemical



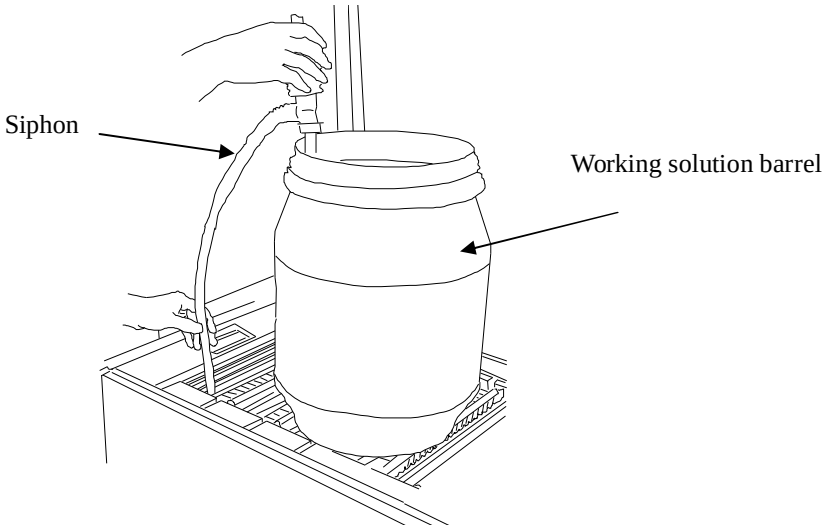
(Fig.11-16)

- Take out the racks in chemical tank，refer to Section 1.5 Rack disassembly for more detail.
- Clean chemical tanks. Clean all the tanks with a hair brush, make sure to

wipe off the crystallization and slag bonding.

- Turn off the chemical valve after completely empty the chemical.
- Restore the racks and the crossovers.
- Refill working solution into chemical tanks by a siphon(As Fig.11-17)

Caution: Refill chemical starting from the tank nearest to dryer rack, i.e. from STB3 to CD, pay attention not to spatter into other tanks, especially not into CD tank.



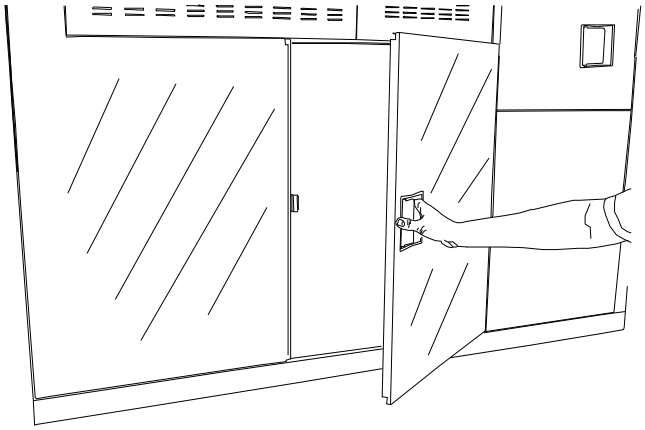
(Fig.11-17)

- Put back the rack cover
- Restore left side cover
- Install back photo-colleting plate

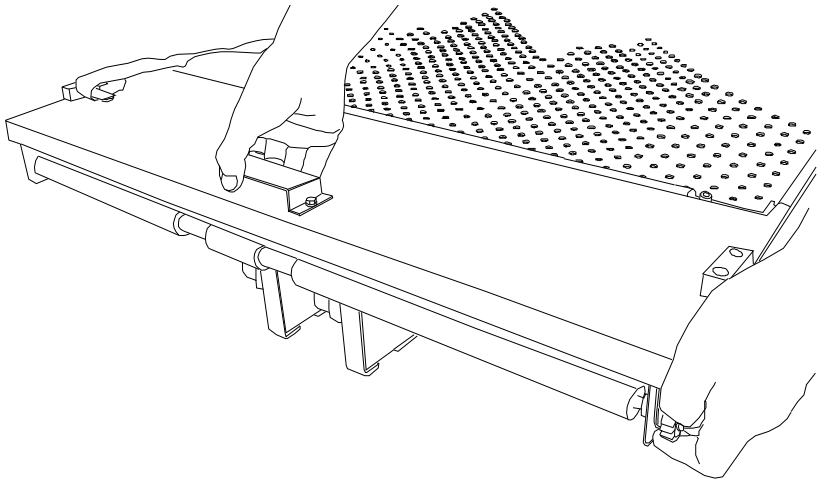
11.9 How to replace ribbon cartridge

It is recommended to replace the ribbon cartridge when the back print becomes dim.

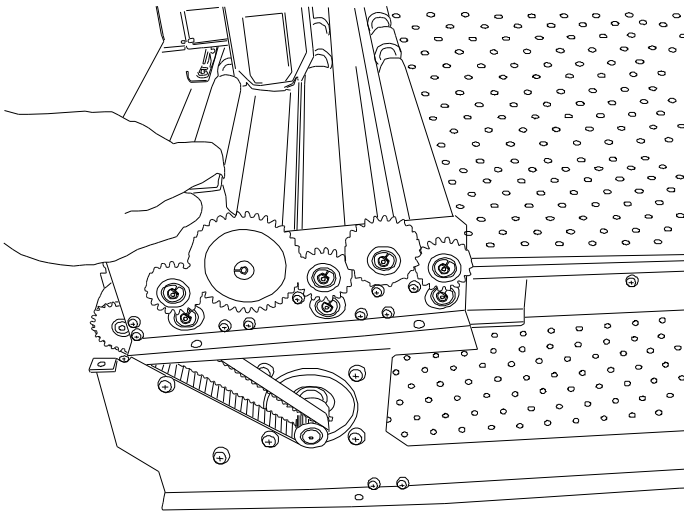
- Open the door of exposure platform.
- Reverse the backprinter(AS Fig.11-19).
- Remove the two fixation screws of backprinter assembly.
- Take out backprinter(As Fig.11-20).
- Remove the three fixation screws of mounting rig, and take it out(As Fig.11-19).



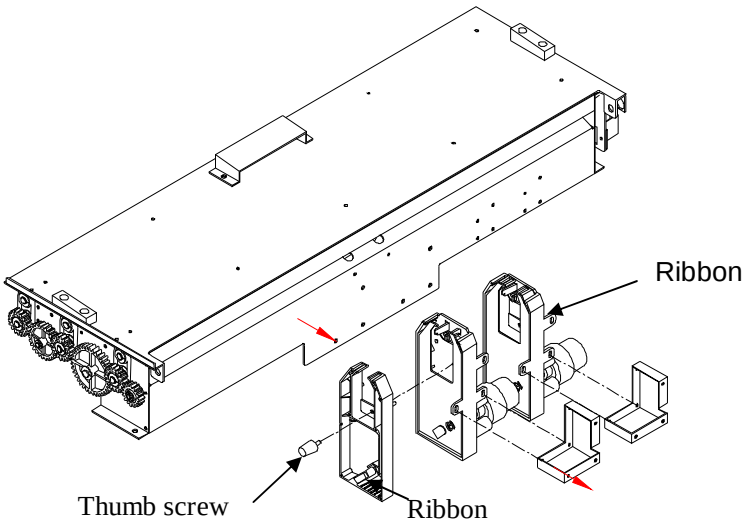
(Fig.11-18)



(Fig.11-19)



(Fig.11-20)



(Fig.11-21)

- Take off the thumb screws for fixing the ribbon catridge, and take it out. After finishing the replacement, screw up the thumb screw.

Note： Ink ribbon must be put tidy and even.

- Restore backprinter mounting rig.

Comment： The proper gap between printing head and upper roller should be the thickness of 2 pcs of paper inbetween printing head and upper roller, push upwards the holder(ribbon catridge)

then tighten the screws. Finally take out the paper.

- Restore backprinter section and close the door of exposure platform.

Chapter 12 Mechanical Malfunction Removal

12.1 Raiser rack malfunction and solution

- Take raiser rack(Refer to Section 11.4 **Assembly and Disassembly of raiser rack** for detail)
- Raiser rack malfunction and resolvent：

Malfunction	Cause	Solution
Paper track deviation	Flexibility of springs on each side is different	Replace with two springs with same flexibility
Paper Jam	1、Unilaterial bearing defective	1、Change unilaterial bearing
	2、Gear defective	2、Change gear
	3、Steering deflector loose	3、Install it properly or tighten it

After malfunction removal, the following check is necessary：

Put a piece of paper in the entrance, rotate the sprocket wheel, the papershold go smmothly, otherwise, recheck the malfunction and solve it.Refer to **DL-3620 Parts Manual,DL-3020 Parts Manual** for more detail.

12.2 Rack malfunction and resolvent

- Take out the racks Section 1.5 Rack Disassembly for more details.
- Rack malfunction and resolvent

Malfunction	Cause	Solution
Paper track deviation	Flexibility of springs on each side is different	Replace with two springs with same flexibility
Paper jam	1、The crossovers of the racks unproperly installed.	1、Install properly all the crossovers
	2、Rubber sleeve on rack bottom distorted and thus too loose.	2、Refer to Section 1.8 **Replace the rubber sleeve on the rack**

		bottom for detail
	3、gear unsuitable or deflective	3、replace gear

After malfunction removal, the following should be checked:

Put one piece of paper at the entrance, turn the knob to see whether the paper can go smoothly, if not recheck the malfunction.Refer to **DL-3620 Parts Manual,DL-3020 Parts Manual** for detail.

12.3 Paper scratch and Solution

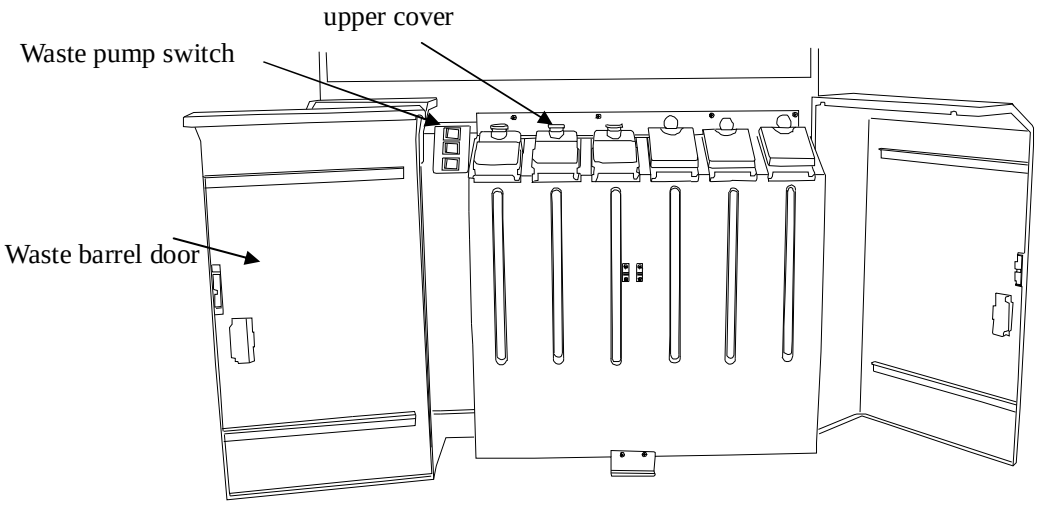
Malfunction	Cause	Resolvent
Paper Scratch	1、cassette outlet too rough	1、smooth oulet
	2、crossover and reck too dirty	2、clean crossover and rack
	3、dryer steering deflector and guide umsmooth	3、smooth their surface

After solve the problem of photo scratch, checking the following is necessary:

Print soveral photos to see whether there is scratch on the photos or not,if there is, recheck the cause and solve it.Refer to DL3620 for detail.

12.4 Waste pump malfunction and Resolvent

- Open the door (As Fig.12-1)



(Fig.12-1)

- Waste pump malfunctiomn and resolvent

Malfunction	Cause	Resolvent
Waste pump dosen't work	1、waste pump disrepair or not	1、replace waste pump
	2、waste pipe disrepair or not	2、replace waste pipe

Note: If no time permitting, you can screw off the upper cover of waste barrel and draw off the waste with a sucker.

12.5 Paper overlapping and resolvent

Malfunction	Cause	Resolvent
Photo overlapping	2、Rubber sleeve on rack bottom or side springs defective	2、Replace rubber sleeve and side springs
	3、Rack gear worn	3、replace rack gear
	4、Rack rubber sleeve worn	4、replace rubber sleeve
	5、Divider sensor defective	5、replace divider sensor

12.6 Photo comes out not dry

Malfunction	Cause	Resolvent
Photo comes out not dry	1、dryer temperature setting not correct	1、reset dryer temperature
	2、dryer fuse broken	2、replace dryer fuse
	3、STB working solution too dirty	3、replace STB working solution
	4、Dryer fan malfunction	4、check wire connection or replace dryer fan
	5、dryer electric stove wire malfunction	5、replace electric stove wire

Print several photos to see if they are wet, otherwise recheck the malfunction(Refer to **DL-3620 Parts Manual,DL-3020 Parts Manual** for more detail).

12.7 Back print dim

- Rewind the paper and switch off processor
- Open the exposure platform door(As Fig.1-24)

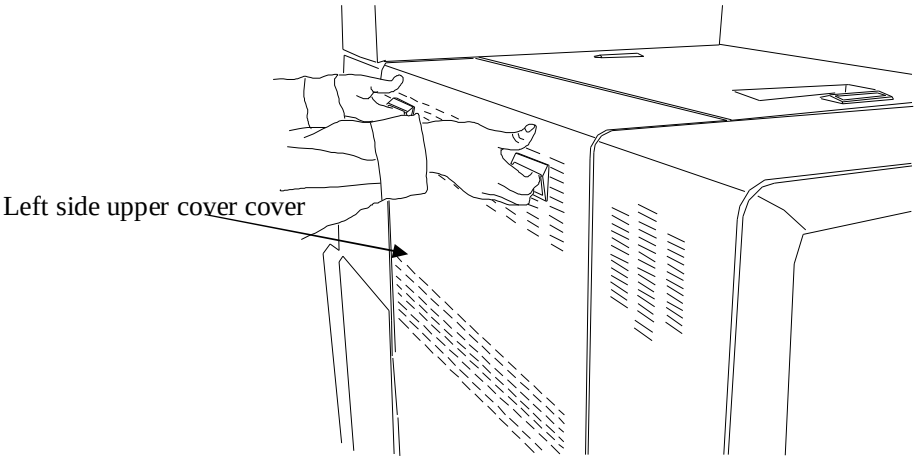
Take out backprinter, loose the three fixation screws of ribbon catridge and adjust the backprinter.

Malfunction	cause	Resolvent
Back print dim	1、print pin missing or not	1、replace print pin
	2、back print voltage on thelowside	2、Increase back print voltage
	3、Print head excessively close to the paper	3、Adjust the distance
	4、No ink	4、Replace ribbon,refer to Section 1.11 How to replace ribbon cartridge for more details

After finishing adjustment，print several photos to check up. If there is still print dim, you need to recheck and remove the malfunction(Refer to **DL-3620 Parts Manual,DL-3020 Parts Manual** for more details.

12.8 Processing solution doesn't warm up and solution

- Remove the left side cover(As Fig.12-2).



(Fig.12-2)

- Check solution system

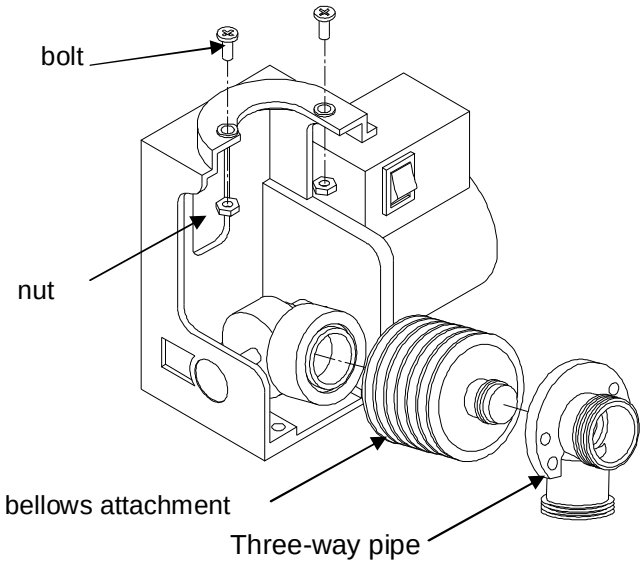
Malfunction	Cause	Resolvent
Chemical dosen't warm up	1、heater is broken	1、replace heater
	2、filter is too dirty	2、wash or replace filter(refer to Section 1.7 filter cleaning and replacement
	3、circulation pump malfunction	3、replace circulation pump
	4、working solution low level	4、refill working solution

12.9 No replenish flux and Solution

- Check and wash replenish unilaterial valve, if spoiled, needs replacing.
- Check replenish bellows attachment whther it is spoiled and there is air leakage, if it is, you need to:

  Since there will be chemical leakage, you need to prepare a clean and proper container.

  - Refert to step 1-4, chapter 1.6 cleaning and Replacement of replenish pump unilaterial pump.
  - Take the unilaterial valves of oulet and inlet.
  - Remove two screws on the replenish pump outlet（They are with the two nut）.
  - Put out replenish bellows attachment,remove the three-way pipe and replace with a new bellows attachment.



(Fig.12-3)

- Screw down the new replenish bellows attachment and three-way pipe, screw the two screwas togehther with the two nuts (As Fig.12-3).
- Put inside unilaterial valve, pay attention to its direction.
- Fix the inlet and outlet of replenish pump (Note: there are arrow marks on inlet and outlet of repl. Pump, do not mistake). Screw down the lid of repl. Pump.
- Fix the repl. pump onto the holder with three screws.